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THE

HYDROPATHIC ENCYCLOPEDIA:

A SYSTEM OF

HYDROPATHY AND HYGIENE.

In Eight Parts:

I. OUTLINE OF ANATOMY, ILLUSTRATED.
II. PHYSIOLOGY OF THE HUMAN BODY.
III. HYGIENIC AGENCIES, AND THE PRESERVATION OF HEALTH.
IV. DIETETIC AND HYDROPATHIC COOKERY.
V. THEORY AND PRACTICE OF WATER-TREATMENT.
VI. SPECIAL PATHOLOGY AND HYDRO-THERAPEUTICS, INCLUDING THE NATURE, CAUSES, SYMPTOMS, AND TREATMENT OF ALL KNOWN DISEASES.
VII. APPLICATION TO SURGICAL DISEASES.
VIII. APPLICATION OF HYDROPATHY TO MIDWIFERY AND THE NURSERY.

DESIGNED AS

A GUIDE TO FAMILIES AND STUDENTS.

AND A TEXT-BOOK FOR PHYSICIANS.

BY R. T. TRALL, M.D.

With Numerous Engraved Illustrations.

VOLUME II.

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HYDROPATHIC ENCYCLOPEDIA

PART V.

THEORY AND PRACTICE.

CHAPTER I.

PHILOSOPHY OF WATER-CURE.

Relations of Water to the Healthy Organism.—Before we can clearly comprehend the remedial relations of pure water to the morbid conditions of the body, we must understand its physiological or vital relations to the healthy organism. These may be stated most succinctly, and remembered most easily, in the form of distinct propositions.

1. Water constitutes the greater proportion of the entire bulk of the body.

2. Water composes more than three fourths of the whole mass of blood; more than seven eighths of the substance of the brain, and more than nine tenths of the various colorless fluids and secretions.

3. Water is the only vehicle by which nutrient matters are conveyed to the blood, and through the blood to all parts of the system for its growth and replenishment.

4. Water is the only medium through which waste or effete particles, or extraneous ingredients, are conveyed from all parts of the system to the excretory organs to be expelled.

5. Water is the only solvent, diluent, and detergent in existence, for animal and vegetable alimentary and excrementitious matters.

6. Water is the only material capable of circulating in all the tissues of the body, and penetrating their finest vessels, without vital irritation or mechanical injury.

7. The only morbid effects of water result from improper tempera-

ture, and over-distension of the hollow viscera, or circulating vessels, from excess of quantity—effects never necessarily unavoidable.

Modus Operandi of Water.—Contrary to the teachings of the standard medical books of allopathic, homeopathic, and eclectic schools, we must ever bear in mind that disease is never a *positive entity*, but always a *negative quality*; it is the absence of health, or of the state, circumstances, and actions which constitute that balance of functional duty we call health. By referring to the misuse or abuse of some one or more of the hygienic agencies, we find the *cause* or *causes* of those deviations from the *normal* state, which constitute the abnormal state, and which we call disease; and now, by applying the above propositions to the causes which produce and the conditions which constitute disease, we will find the true grounds which indicate and demonstrate water to be a remedy of general, and even universal application.

In a general sense, diseases are produced by bad air, improper light, impure food and drink, excessive or defective alimentation, indolence or over-exertion, unregulated passions, in three words—unphysiological voluntary habits. The conditions of the body in disease—the *proximate causes* against which all remedial efforts are to be directed—are, in general terms, impure blood, unhealthy secretions, obstructions in the minute vascular structures, or capillary vessels, excessive action in some parts or organs, with deficient action in others, unequal temperature, etc., in other words, a *loss* of balance in the circulation and action of the various parts of the vital machinery, producing great discord in some portion of it, and more or less disorder in all. The general indications are, therefore, to remove obstructions, wash away impurities, supply healthful nutriment, regulate temperature, relax intensive and intensify torpid action, etc.; and what like water, what *but* water, with its concomitants, air, light, food, temperature, etc., can answer to these indications?

To say that medicinal drugs can answer these indications is sheer nonsense. They may respond to any other indications almost that can be named; but these, *never*. They may change the issue, they may suppress a symptom, remove a pain, transfer an irritation, excite a new vital resistance, produce *another* obstruction, and so divide the organic struggle between two points, diminish vital power, or increase vital expenditure; but none of these impressions or effects are really remedial, none of them meet the indications; and if physicians in general, and mankind in particular, are not satisfied with the experiments of three thousand years, which, by the way, have destroyed ten times as many of the human family as they have saved, let them by all means *be satisfied*, even if they have to go on in the same absurd,

blundering, and senseless, though very learned and scientific business, of drugging and killing, marring and scarring, for three thousand years longer.

Water, according to the mode of application, can intensify or moderate any function; it can energize or abate any given action; it can be made to increase or diminish temperature, locally or generally, to any extent desired; hence, though not a universal cure—for diseases are not universally curable—it is a remedy universally applicable. But while water, judiciously managed, may be doing its appropriate work in alleviating or curing disease, other causes may counteract, retard, or entirely prevent the consummation of any curative process. The patient may live badly in other respects; something in his eating, or drinking, or sleeping, or exercising, or other voluntary habits, may be wrong, and constantly re-supply the causes of disease as fast or faster than the best remedial use of water can remove or overcome them; therefore, though water is put prominently forward in the hydropathic system as in all cases the *great panacea*, it must ever be recollected that it is but one of several remedial agencies whose influence is equally to be regarded in preserving health or in curing diseases.

To illustrate: Of fifty or a hundred invalids at a hydropathic institution, while all may employ water in the way of bathing in the best possible manner, one half of them will pretty certainly hold on to some unhealthful habit which retards or prevents the cure, or renders it imperfect. One will nibble on candies or fruits between meals; some in the cities will lunch on oysters or plum-pudding; some will eat flesh immoderately; others will persist in the use of butter or greasy meats sufficiently to keep them constantly bilious; others will take salt enough to keep the whole body pickled, as it were, in an acrid brine; others will eat an undue proportion of fine flour, and keep the bowels all the while constipated; others will endeavor to make up by the "stimulus of distension" for the lack of mustard, vinegar, and pepper; others will drink tea or coffee, chew tobacco, or smoke cigars occasionally; and yet others will indulge in a dose or two of drugs now and then, stealthily, of course; and so on to the end of the chapter of "errors in Water-Cure." It is true all these things are ruled out of the establishments, but they are, notwithstanding, very frequently practiced by many patients; and what is particularly vexatious, ungrateful, and perverse, all the evil consequences of their bad habit are usually imputed to the Water-Cure!

It may be said that the physician ought to manage all these matters, and make all patients conform in all respects to a physiological regimen. This is not always possible, for with many invalids habit is much

stronger than reason, and with some dyspeptics the craving of the morbid appetite for its disease-producing aliments, and condiments, and narcotics, is not a whit more governable than is the drunkard's appetite for those intoxicating poisons which have produced his insatiate craving. Both kinds of appetite are controlled, and finally overcome by a few; but sad experience tells the story that the majority are conquered and destroyed by them.

In accounting for the therapeutic operation of particular processes of the water-treatment, we must never forget that Nature is the true physician. The restorative power is inherent in the living organism. All that the true healing art can do is to supply favorable conditions, remove extraneous materials, and regulate hygienic influences, and thus place the system as fully as possible under organic law.

The humoral pathologists impute all diseases to a *lentor*, or morbific matter in the blood; while the solidists and vitalists contend that the *action of the solids*—being too much increased or diminished—is the proximate cause of all diseases. The former bleed, leech, scarify, blister, sweat, puke, purge, stimulate, and antiphlogisticate; and the latter bleed, leech, scarify, blister, sweat, puke, purge, stimulate, and antiphlogisticate too! Here is diversity of cause producing identity of effect; a postulate not dreamed of in natural philosophy.

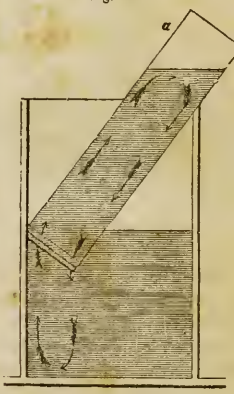
We may apply water to the treatment of disease, on either theory, much more rationally than the allopath can his drugs and depletives. Whichever theory we adopt—and both are correct to a certain extent—we can alter, depurate, change, increase, restrain, or modify the fluids and actions with water and regimen, as well as with lancets and drugs, and with none of their necessary evils or ever-present dangers. We can even get minerals, chemicals, and other drug-medicines out of the body by means of water-treatment, whereas the *ne plus ultra* of drug medical science consists in getting the system full of them, and then abandoning it to its fate, and "the efforts of nature."

It is no uncommon circumstance for patients to become severely salivated during water-treatment. I have treated several cases wherein patients who had taken no mercury for several years, experienced all the symptoms of a "mercurial course," such as tender, fleecy gums, metallic taste, fetid breath, swelled tongue, and copious drooling. Other mineral poisons also produce great constitutional or local disturbance during the process by which they are expelled from the body. These drugs, as already intimated, all the other drugs in creation have no power to remove from the body. They may, like acids and alkalies, silence each other's specific action, or combine to produce a different action; but they do not and cannot drive each other out of the system.

The manner in which water purifies the body from mercury and other mineral poisons, *alias* medicines, affords an explanation of its mode of action in a great variety of morbid conditions. Referring to the laws of *endosmose* and *exosmose*, as explained in the physiological part of this work, we find that when animal membranes, living or dead, and whether connected to or separated from the body, have their opposite surfaces in contact with dissimilar fluids, an interchange takes place, which is continued until the constituents of both fluids become exactly similar, when all action between them ceases. Dr. E. Johnson *(Domestic Hydropathy)* has constructed the following diagrams, which very well illustrate this subject:

In fig. 162 *a* is a glass tube, the diameter of whose caliber is four tenths of an inch. Close one of its ends accurately with a piece of bladder, and fill the tube with brine. Now take a much larger tube (*b*)—a common tumbler will do—and fill it three quarters full with pure water. Then immerse the bladder-end of the small tube just under the surface of the water of the larger tube or tumbler, giving it an inclination of about 45°. In a short time a current of liquid will be seen rising from the bottom of the water in the tumbler, upward along its side, in the direction indicated by the arrows, through the bladder, and up along one side of the small tube to the surface of the brine; then it descends along the other side of the small tube, in the direction of the arrows on that side, down through the brine, and through the bladder, down to the bottom of the water. The downward current is a current of brine descending into the water in the tumbler. The upward current is a current of pure water ascending into the tube to supply the place of the lost brine; and this current will continue until the two fluids have become similar, that is, until the fluid in the basin has become as salt as that contained in the tube.

Fig. 162.



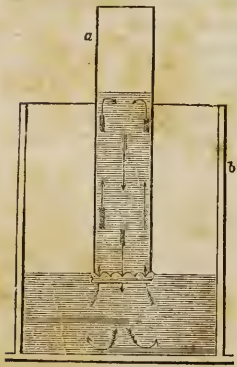
ENDOSMOSE AND EXOSMOSE.

"If now the tumbler be emptied, and refilled with pure water, the current will be re-established, and in this way the brine in the tube may be completely purified of its salt.

"The currents will be seen with beautiful distinctness if some very

fine particles of indigo be suspended in both fluids—that in the tumbler, and that in the tube.

Fig. 163.



ENDOSMOSE AND EXOSMOSE.

"If the tube *a*, in fig. 163, which contains the brine, have a caliber whose diameter is four fifths of an inch, and if it be supported vertically, so that the bladder-end be immersed just below the surface of the water in the tumbler (*b*), two currents will be seen to ascend, in the direction of the arrows, through the bladder, one on either side of the tube, to near the surface of the brine. They now turn, and descend together in a double current through the middle of the brine in the tube, down through the bladder into the water, where they diverge, turn again, and again ascend. The double current descending through the middle of the tube is a current of brine coming down into the water in the tumbler. The two separate outer currents ascending from near the bottom of the water in the tumbler, are two currents of water going up through the bladder into the tube, to supply the place of the brine which has descended into the water.

"Now when pure water is held in contact with the external surface of the skin of the body, by means of the wet sheet, or any other means, precisely the same conditions are established with regard to the fluids within the body, that is, on the inside of the skin, and the water which is in contact with its outer surface, as are established in fig. 163, between the fluid (brine) contained in the tube, that is, on the inside of the bladder, and the water in the tumbler, which is in contact with the bladder's outer surface. About eighty per cent. of the blood is water, and it is this water which holds in solution whatever soluble substances, whether poisonous or otherwise, happen to be present in the blood; and it is this water, holding in solution fibrin, albumen, and the various salts proper to the blood, which alone circulates in those myriads of millions of millions of capillary vessels which are too small to admit the red particles. When any poisonous matters are present in the blood, it is in this water of the blood that they are held in solution, as the salt is held in solution in the water of the brine.

"Now when by means of the wet sheet, pure water is held in contact with the outer surface of the skin, and supposing that the water

of the blood, which is on the inside of it, is poisoned, say with bichloride of mercury, what happens is this: An interchange takes place between the fluid on the outside (pure water) and the fluid on the inside, viz., the water of the blood holding bichloride of mercury in solution. The mercury-and-water passes through the skin into the water of the wet sheet, while the pure water of the wet sheet passes through the skin into the blood to supply the place of the mercury-and-water. As in figures 162 and 163, a double current is established; a current of pure water into the body, and a current of mercury-and-water out of the body; and in this way, by frequently renewing the external contact of pure water with the skin, the blood is purified of whatever poisonous or otherwise morbid matters it may happen to contain.

"If a glass tube be partially filled with a saturated solution of salt (brine), one end of the tube having been first carefully tied over with bladder, and if the tube be suspended in the air, in a short time that side of the bladder which is exposed to the air becomes covered with salt. The brine passes through the bladder from the inner to the outer surface. When it reaches the outer surface the water evaporates, leaving the salt adhering to the bladder.

"When a person has taken the nitrate of silver for a considerable length of time, it is well known that the skin becomes colored permanently blue, from the lodgment of oxide of silver in the tissue of the skin, the nitrate being converted into a simple oxide.

"It would seem that something similar happens here with regard to the salt of silver (nitrate of silver) and the skin, as happens with regard to the salt of the brine and the bladder, in the experiment just described above. The water of the blood, holding the nitrate of silver in solution, passes through the under layers of the skin until it reaches the rete mucosum, which lies immediately under the scarf-skin, not traveling along the perspiratory spiracles, but permeating the tissues. Having reached this locality, the water of the blood evaporates, while the silver, unable to penetrate the dry and horny cuticle, is left fixed in the rete mucosum."

Similar experiments may be tried, with similar results, with any of the soluble metallic, mineral, or earthy salts, as of arsenic, iodine, sulphate of potassa, etc. I have known mercurial ulcers take place during water-treatment, on the lower extremities of patients whose bodies had, years previously, been thoroughly mercurialized, and which it was impossible to heal until after the body had become entirely cleansed of the mineral by several months' treatment.

WATER-TREATMENT AND DRUG-TREATMENT CONTRASTED.—The

above facts amply demonstrate the superiority as well as the more rational philosophy of the water-treatment over the drug-treatment on the humoral theory. But the vitalists have much to say about "dynamic forces." With them every thing goes by *impression*, or *stimuli*. Disease is produced by morbid *impressions* on the brain, or nervous system, which impressions are conveyed to the various organs or parts of the body by nervous distribution, or functional sympathy; and remedies operate by electric, magnetic, stimulant, alterant, or some other forceful property which makes *impressions* on the nervous centers, and these *impressions* are thence radiated through the system, and counteract, overcome, subdue, or in some other most mysterious and utterly inexplicable manner, cure disease, or, perchance, by some unfortunate and unaccountable circumstance or accident, render it worse.

But there is something of matter-of-fact in this theory, as, indeed, there is in nearly all the vagaries which have ever possessed men's minds. We know that mental impressions do disturb or modify, arrest or energize either and all of the functions of the body, and these impressions may be morbid or sanatory; they may produce disease or remove it. But on this principle of physiological impressibility, is there not a better way of exciting counteracting morbid impressions than by drawing off the vital current, or poisoning the body through and through with pernicious drugs? Common sense replies in the affirmative, and all rational minds, unbiased by a miseducation, would respond, "there *must* be a better way." And here our "universal panacea," pure soft water, supplies the desideratum. On the theory of impressibility it is just what is desirable, and all that is requisite, if suitably aided by the other hygienic adjuvants. All the impressions made on the living body can only affect its functions as they produce or arrest action or motion, which action or motion is muscular contraction. Cold water and ice are assuredly the most powerful constringing agents that can be applied to the living structures without destruction or injury; and hot water, or steam, is the most efficient relaxant that can be safely employed. For producing moderate contraction or relaxation, we have all degrees of temperature between the freezing and the boiling points.

The remedial effects of water, thus far considered, are a complete substitute for all the depletory processes of the regular system, as *bleeding*, *leeching*, *antimonializing* and *refrigerating*, and all the classes of medicines called *emetics*, *cathartics*, *diaphoretics*, *diuretics*, *alteratives*, *tonics*, and *stimulants*. But there are other classes which are called *narcotics*, *nervines*, and *sedatives*, to which opium, camphor, ether, musk, castor, henbane, ratsbane, dogsbane, wolfsbane, and divers

other *baxes* belong, which at first view seem more difficult to dispense with. There is something like a charm in the idea of sending down the the sick person's throat a dose which silences his pains and quiets his distress with magical celerity. But the charm is at once dispelled when we look to ultimate consequences. The very pain which the potent and ill-advised dose of the doctor has subduced is generally the warning voice of the organic instincts that something is wrong, or the effort of the organism to rid itself of an enemy. When the organic instincts proclaim to the whole domain of life, through the medium of the brain, that an enemy is present, that proclamation is *felt*, not heard, *and its language is pain*. It is one thing to silence the outcry of nature for help, but it is quite another thing to relieve her by dislodging the enemy. The first may often be done by narcotics and stimulants; the second can be accomplished by the use of water. In fact, water will often succeed in promptly removing pain which the most powerful narcotics fail to mitigate. There may be inflammation, obstruction, engorgement, distension or contraction, the pain of which all the opium that can be taken short of deathful doses will not alleviate, and yet water of some temperature and in some form of application will relieve at once.

There are also classes of medicines called *acids*, *alkalies*, *anthelmintics*, *lithontriptics*, *demulcents*, etc. How, it may be asked, is water to substitute them? Simply by obviating the occasion for them. A patient has a sour stomach, and the doctor gives him soda; another is afflicted with worms, and the doctor administers something to poison them to death; another has gravelly concretions, and the doctor advises chemical solvents; another has acrid bile which corrodes his throat, and the doctor prescribes lubricating mucilages, and so on to the end of life. But who cannot perceive that all this practice, as a part of the *healing* art, is absurd and ridiculous? Who so stupidly blind as not to see that it is a mere patch-work, tinkering at effects without removing causes? The water-treatment corrects the *condition* upon which the existence of these abnormal symptoms depend, when of necessity they all disappear.

In the works of the popular system we read much about "accelerating the change of matter," in order to renovate the tissues and reinvigorate the functions. To do this it is recommended to bleed, purge, and mercurialize the patient down, and then, *presto!* wine, tonics, and "generous diet," to stimulate him up again as fast as possible, thus doing and undoing interchangeably. Bathing, with appropriate air and exercise, and plain simple food, will effect a change of matter incomparably more rapid, and without the destruction of healthful materials,

or the injurious "dynamic force" of alcoholic poison. If there is surplus matter about or within the body, water will wash it away, and if there is a deficiency of organic material, pure food and good digestion are the natural means to supply it.

Again, the water-treatment, by regarding the skin as the leading depurating function of the body, follows out the indications of nature herself, which expels the greatest amount of morbific agents, whether miasms, effete organic matters, or drugs and medicines, from the body, through the cutaneous channels. Instead of wearing out the alimentary canal, where but a small quantity, comparatively, of waste or offensive matter is ever found, with horridly poisonous emetics and bowel-scraping cathartics, the principal detergent process is directed to the skin, where naturally five or six times the amount of excrementitious matters are got rid of, that is, thrown off by the bowels.

There is a principle recognized in the allopathic school, called *counter-irritation* or *antagonism*. Indeed, some late authors have gone so far as to consider it the fundamental principle of the whole drug and depleting system. It is based on the supposed law of the animal economy, that nature, or the vital powers, cannot maintain two different kinds of morbid action in different parts of the body at the same time. Thus, if a man has an inflammation of the stomach and bowels, and you produce a severer inflammation of the mouth and salivary glands with calomel, the stronger mercurial excitement will absorb, as it were, the lesser inflammatory action; the latter will then get well, after which the doctor may cure the drug-disease he has produced—the salivation—if he can. Such practice has no claim to the title of *healing art;* it is doing an irreparable injury, with the ulterior possibility of a greater good. *Blisters, issues, escharotics,* and the endless compounds in the shape of *irritating ointments* and *stimulating liniments* are predicated on no better philosophy than that of removing one evil by producing another.

But admitting the fact that one disease does antagonize, or neutralize, or supercede another, the usual explanation is, I think, unsound. This vaguely-conceived "law of the animal economy" is really no law at all. It is the *resistance* that the vital powers make to morbific agents, which pathologists have misnamed a law of the animal economy. Two diseased actions, or diseases in two different parts of the body, or obstructing or offending materials in two or more parts or organs, will manifest different phenomena from what are observed when one part or organ only is affected, because vital resistance is then distributed to several points instead of being concentrated at one.

If a person is laboring under a fever, that congestion of the organ-

ism which we denominate the *febrile paroxysm* is the manifestation of the vital struggle to defend the organic domain against some morbific cause, or to expel some injurious matter. If the vital powers are making the principal effort to the surface, the introduction of a cathartic dose of epsom salts would divert some part of this vital effort to the bowels to meet, defend against, and expel the new enemy which is committing its ravages there, and thus purgation would result, while the depurating or remedial effect to the skin would be materially diminished. The seat of war would be changed, or the battle-field divided, but so far from being "a friend in need," the saline purgation, by drawing off and wasting a portion of vital power, would only prove a "foe indeed."

The water-treatment does not operate on the principle of antagonism or counter-irritation, according to the popular theory, for it does not produce a train of morbid actions constituting a new specific disease; nor does it put foreign, acrid, irritating, and deleterious ingredients into the blood, to produce some powerful impression at a dash, and then leave the vital powers to war against and waste themselves in counteracting or removing them for months and years afterward. It has been objected, that a cold bath was a morbid impression, as much as a hot blister, because it is an artificial instead of a natural method of applying water. But this argument is short-sighted. A cold hip-bath, for example, produces exactly the same vital phenomena, action and reaction, that our bodies are subjected to every day, and hour, and moment of our lives, differing only in degree. The first impression of the cold water causes the blood to recede from the capillaries; but the vital powers soon meet the impression by an increased determination of blood to the part, to balance the temperature of the body, and soon the capillaries become distended with blood, the part red, turgid, and in a warm glow. If this process is frequently repeated, the general result is to develop the superficial or capillary circulation of the part, and to that extent unload the vessels elsewhere, remove internal congestion, etc. If the impression is too strong for successful vital resistance, if the water is too cold for the ability of the patient to react, of course the opposite effect results; internal congestion is increased, and we have the *abuse* of the hygienic or remedial agent.

This determination to the surface in consequence of the impression of cold water, cannot be called a morbid action in any sense. If we go out of a comfortably warm room into a very cold atmosphere, our hands and face may at first become pale, cold, the vessels contracted and bloodless; but on returning to the room, and often under the continued application of the cold, reaction takes place, and they soon

appear more red and turgid, and feel warmer than before their exposure, for a few minutes, and then return to their usual appearance and feeling. So the slight disturbances of the circulation produced by ordinary bathing is merely an intensified contraction and relaxation, amounting to temporarily increased action, and followed by the same harmony of circulation as existed before. Atmospheric influences, vicissitudes of temperature, variations of exercise, etc., when not extreme or violent, produce temporary disturbances of the circulation, which, so far from being morbid, are really sanatory, nay, indispensable to full health and vigor. Nature allows us a liberal range of immunity in the employment and enjoyment of agencies naturally harmonious with our structures and functions.

But how different is the case if we take into the domain of life a substance chemically incompatible with its structures, or an agent physiologically incompatible with its functions. Although they are met with the same vital resistance as a cold bath, or a hot bath, their temporary impression is *never* succeeded by absolute equilibrium and quietude. They leave either a mark or a void in their track. When chemically incompatible, as are all the metallic and mineral preparations, they act upon, corrode, decompose, and destroy some part or portion of some constituent of some solid or fluid, of some organ or structure. Familiar and melancholy examples of chemical incompatibility are found in the ulcerations of the mucous membrane of the mouth, throat, stomach, and bowels, produced by the ordinary employment of saleratus in cooking, and the rotting of the teeth and bones in consequence of a mercurial course. When they are physiologically incompatible, like alcohol, tobacco, opium, etc., they exhaust, irrecoverably, some portion of the vitality itself. The impressions of drug-agents of all kinds are constantly destructive or exhausting so long as they are kept up; but the impressions from cold bathing may be continued during a whole lifetime without injury.

It is true that, in water-treatment, we apply cold water to the body when hot, hot water when cold, etc., not to antagonize action, but to balance action; the grand general indication in treating all diseases hydropathically being to *equalize* the temperature, circulation, and action. The principle of antagonism, as practiced allopathically, tends to silence the efforts of nature, to counteract the vital powers, to suppress the organic instincts, to obstruct the *vis medicatrix naturæ*, to embarrass the cure, and, in the majority of cases, to place the life of the patient in greater jeopardy than it would be with no medication whatever.

The true philosophy of water-cure, in almost every essential point

of doctrine, is diametrically antagonistical to the prevailing theories of the allopathic schools.

Some of the homeopathists have lately discovered that water acts on their favorite principle—*similia similibus curantur*. It is to my mind inconceivable how water can produce, in infinitesimal or any other quantities, any other *dynamic* effects than such as are referrible to temperature, bulk, or solvency. Water is the agent which homeopathy employs to dilute, and thus "enlarge the surface" and develop the pathogenetic property of its remedies; but how *it* is to be reduced to its third or thirtieth potency by dilution, is a problem which may be safely laid away among the unaccountables.

The eclectics, who "select the good and reject the bad" of all systems, claim that water acts like a hundred other drugs which are in "harmony with the constitution." They pretend to eschew all poisons, and use nothing but the "innocent remedies," which are best adapted to "aid and assist nature;" but, unfortunately for their fair pretension, we find a variety of vegetable and even mineral poisons among the everyday prescriptions of their writers and practitioners, as preparations of opium, and preparations of iron.

Rationale of Drug-Medication.—All the standard works on physiology and therapeutics of the drug schools throw not a solitary ray of light on the *modus operandi* of drug-medicines. The *effects* which a thousand different drugs produce upon the various functions of the human body, under almost all conceivable variations of conditions and circumstances, have been investigated with praiseworthy industry, and recorded with tedious minuteness and extraordinary precision. But *why*, *how*, and *wherefore* these effects are thus and so, we are as ignorant, as far as their labors are concerned, as are the inhabitants of the moon, who, it is presumable, do not have access to their books. *Why* tartar emetic or ipecac produces vomiting, *why* jalap or senna purges, *why* mercury or tobacco salivates, *why* opium or catnip produces perspiration, *why* nitre or green tea produces diuresis, *why* Spanish flies or boiling water raises a blister on the skin, *why* calomel or pink operates as a vermifuge, *why* aloes or iron operates as an emmenagogue, etc., etc., are problems as deeply in the dark now as they were before the light of medical science dawned upon the world, for all that appears in the writings of the standard authors, or the teachings of living professors.

But, fortunately for humanity, the principles upon which this explanation is founded are abroad in the world. Surely and steadily they are working their way into the understandings of reading and thinking

people, and just so soon as they are generally appreciated will the drug system of treating diseases be among the things that were. These principles are more fully developed in the writings of Sylvester Graham than in those of any other author. The works of George Combe contain some illustrations of them. The writings of Dr. Lambe, Dr. Alcott, Dr. Jennings, and Rausse, abound in teachings predicated on their recognition, while the practice of Priessnitz and his followers is constantly demonstrating the correctness of the explanation which they afford. I will try to present this matter clearly, for I am most undoubtingly convinced that the individual who fully understands it will be exceedingly loth to swallow any apothecary drug, whether it go by the name of drug-poison or drug-medicine; and he who has both philanthropy and intelligence will be as unwilling to administer those foreign agents to other stomachs, as to take them into his own.

There is a class of medicines known as *tonics*, or strengthening medicines. Books on materia medica define them to be such articles as give tone, or tonic contractility to the moving fibres, and at the same time augment the activity of the digestive function. Now among the tonics we find a most incongruous set of materials, as quinine, arsenic, boneset, iron, wormwood, oak bark, quassia, aloes, rhubarb, copper, zinc, etc. All authors agree that if the use of a tonic is long continued, the effect is *debility*. Here is a paradox. A tonic medicine first *strengthens*, and then *debilitates*. *How* are these results to be accounted for?

When a drug-medicine of any kind, or a poison of any kind, is taken into the stomach, the organic instincts recognize the presence of a something which is neither food nor drink; something unnatural; something which has no constitutional relation to any want or duty of any part or organ, hence an intruder, an enemy. The vital powers *feel* an attack upon the citadel of life, and prepare to act defensively. The lining membrane of the stomach is aroused to increased action; an unusual quantity of mucus and serum is secreted to protect the coats of the stomach from the poisonous or medicinal agent; but the stomach does not *suffer* alone; the alarm is communicated to other organs, to all parts of the system; and this manifestation of increased vital action, this disturbance of the organism, this commotion of the body, is regarded by the doctors as a tonic effect! How words deceive!

If but a few of these "tonic" impressions are made on the stomach, if only a few doses are taken, the vital powers, after enduring the siege, and defending themselves as well as may be, subside into their accustomed quiet, and the exhaustion, being not very great, is n

specially noticed. But if these tonic impressions are kept up a long time, if the medicines be long continued, the vital expenditure is so great that the doctors call the evidence of its loss *debility;* and well they may. The organic instincts are finally wearied out, they become torpid, and refuse longer to respond to the impression; the lash ceases to be troublesome. Now it is that the doctor, who wishes to still keep up a tonic impression, who desires to *strengthen the system* yet a little more, brings a new recruit into the field. He administers another tonic; no matter what, if it be a *different* one. It works like a charm! The vital powers, though jaded and half palsied, are not yet dead. A new enemy will startle them again; an unaccustomed impression will again arouse them to resistance. If the first tonic was wormwood, the second may be arsenic, or *vice versa.* After the second tonic has spent its force, or, rather, after the vital powers cease to resist, a third one may be brought to bear; and so on, as long as the patience of the patient or perseverance of the practitioner can endure. Thus do tonics continually strengthen the patient, and leave him weaker in the end.

A decisive evidence of the correctness of this explanation is found in the fact, that every drug under heaven can be made to operate as a tonic. Mercury, lead, antimony, cod-liver oil, ipecac, gamboge, aqua fortis, or powdered glass—as incongruous a medley as can be conceived—will produce tonic effects, provided the dose is such as not to occasion any decisive evacuant or corrosive operation, by which the article is suddenly evacuated, or the structure altered. Cod-liver oil and ipecac have both had their day of reputation for improving digestion, or fattening the body. Why? Because when taken into the stomach, that organ being the point of attack, the vital powers are disproportionately directed to that organ in defense; and if the doses are frequently repeated, a determination of nervous or vital energy is established toward the digestive function. The digestive organs may thus be temporarily invigorated at the expense of all the rest of the body—a dear-bought method of promoting digestion and fattening the body, in the end.

But why do some poisons or medicines produce vomiting, others sweating, others purging, etc. Simply because they are, by means of those violent or increased efforts of the excernent functions, got rid of. It is a law of the animal economy, that all injurious agents which gain admission, no matter how, within the domain of vitality, are counteracted, neutralized, or expelled in such manner as will produce the least injury or disturbance to the organism. If a very large dose of ipecac, for example, is swallowed, so large as to prove immediately dangerous to life, or seriously destructive to the structural or functional integrity of the stomach, its action is met with such violence of resist-

ance as to produce severe spasmodic contractions of the muscular fibres of the stomach and the abdominal muscles, by which the ordinary peristaltic motion of the alimentary canal is reversed, and vomiting results. If the dose be smaller, a profuse watery secretion is poured out upon it from the mucous and lining membrane of the stomach and bowels, to dilute it, and render its presence less harmful, while it is conducted along the alimentary canal by the ordinary peristaltic motion, and expelled from the bowels, and thus we have a cathartic effect. If the dose be still smaller, it is largely diluted with serum, taken up by the absorbents, carried into the mass of blood, and finally thrown off by the skin, this being the manner in which a small quantity can be most easily got rid of, and thus we have a diaphoretic operation. If the dose be even yet smaller, so that no special effort of the organism is made to throw it off at either emunctory, the vital powers meet, decompose, and destroy it in the stomach, for which purpose there is an increased determination of blood and of nervous influence directed to the part, and hence we have its tonic effect. Thus may a single article of the materia medica produce, according to the quantity administered, the various and seemingly opposite operative effects of *vomiting*, *purging*, *sweating*, and *strengthening;* while each effect is attended with an absolute waste of vital power.

It is well known, too, that all drugs lose a degree of their potency by repetition; in other words, the vital resistance is gradually overcome or worn out, so that, to produce the same operative effect, the dose must be constantly augmented. Those who find a sufficient stimulus in one glass of brandy per day, frequently find ten required in a few years to produce an equal excitement; those who commence on one cigar daily, generally end with several; and those who find at first one patent pill sufficient to move the bowels, not unfrequently find twenty or thirty an inefficient dose after the vital resistance has been pretty thoroughly subdued.

When medical books, therefore, tell us that drugs lose their *remedial* effects by long continuance, we are to understand that *vital resistance* is subdued; for so long as the organic instincts act *against* the remedy, so long will the phenomena of resistance occur, which medical reasoners, starting from mistaken premises, call medicinal. It may be remedial, and is, in a certain sense—rendering evil for evil.

If a blistering compound, which acts chemically or corrosively upon the structures, is placed upon the skin, serum is poured out, the cuticle is raised, a collection of water is formed as a barrier to the farther approach of the adversary, the scarf-skin is sacrificed to save the true skin, and the red, turgid, inflamed blood-vessels show the violence of

this defensive struggle. It may be that the vital energies which were struggling against the cause of a deeper-seated pain are so diverted to the new point of attack—the blistered surface—that the prior pain is no longer felt. The doctor calls it cured; it may be cured, and yet its cause be aggravated, and the patient only the worse for the cure.

The grand distinctive effects of homeopathic and allopathic practice are not to be explained on the principle of "*similia similibus curantur*," nor upon the principle of "*contraria contrarius curantur*," nor upon both principles together, but upon this principle of vital resistance we are considering. Let me illustrate this point.

Tea, coffee, catnip, thoroughwort, uva ursi, milkweed, etc., are medicinally diaphoretic and diuretic; in other words, the vital powers expel them through the skin and kidneys, the expulsive effort being denoted by diaphoresis and diuresis. From improper food, vitiated air, impure water, or suppressed perspiration, the blood may be loaded with morbific matters, which the vital powers are naturally disposed to expel through these depurating organs—the skin and kidneys. Now while the vital powers are making a special effort to get rid of the special cause of disease—morbid matter—let us see what happens by the special introduction of a medicinal drug. Precisely this. If the drug be so small in dose as not to disturb seriously the first passages, and provoke vital resistance there—that is, if it be homeopathic—it passes on into the circulation, to be expelled through the skin and kidneys; thus, by adding another morbid cause to the existing one, both of which incite the vital powers to expulsive efforts through the same channels, the determination to the skin and kidneys is increased; the *remedy* does actually increase the *remedial efforts* of nature, for the simple reason that it provides a greater duty for nature to perform. When the morbid matter of the disease and the morbid matter of the drug are got rid of, we have a cure on the homeopathic principle.

But suppose the dose to be allopathic, that is, large enough to produce a strong impression on the stomach and bowels, and excite active resistance in the first passages. Here are then two sets of vital efforts at work in different directions, at variance with and counteracting each other; one to the skin, to expel the morbific causes of the disease, and the other to the primary nutritive functions, to resist the morbid matter of the medicine. The efforts of nature being thus divided and distracted, are rendered inefficient for either duty; but if the impression of the drug be *very* powerful, it may produce a new disease, and draw off all the remedial efforts from the skin and kidneys to resist its action, and then we have a cure on the allopathic principle. The disturbance of the skin and kidneys is silenced, and all that is required is

to recover, if possible, from the factitious malady—the effect of the drug.

We can more readily understand how vastly superior the homeopathic practice is, in all those cases of disease, as the simple fevers and exanthems, wherein the efforts of nature are directed especially to the skin, and wherein they are, in almost all cases, when left to themselves, equal to the task of overcoming the difficulty. The infinitesimal dose does not, to any appreciable extent, hinder the success of those remedial powers inherent in the living organism. We can account for another problem, too: the superiority of the allopathic practice in a different class of diseases, in obstructions of and morbid accumulations in the alimentary canal, where the strongest impression of the allopathic dose can be made in the line of direction of the remedial efforts of nature. In the case of a simple fever the allopathic dose would interrupt the natural course of these remedial efforts; but in a case of constipation from retained excrementitious matters, the homeopathic dose would work adversely.

I am far from denying that, under certain circumstances, drug-medication, either homeopathically or allopathically, may do much more good than evil, though I contend that such is not the general rule; but I insist that the true healing art contemplates a method of medicating diseases on an entirely different basis; and a true basis, I claim is furnished by the philosophy of the Water-Cure system, which adjures drugs, and depends wholly on hygienic influences.

There is nothing in medical experience more speciously delusive than the stimulating practice in cases of extreme prostration and debility. When a fever, for example, "turns," or completely subsides, the patient is weak and relaxed; and if he has been *severely* drugged, he will be *very* weak. The doctors of all schools, except the hydropathic, are always afraid the patient will "sink," or "run down," unless kept up with brandy, wine, quinine, or some other diffusible stimulant or tonic. Hence, no sooner is a fever subdued by reducing agents, than it is produced again by exciting agents, on the absurd theory of sustaining the body on mere stimulation until it can recover its balance, or in some mysterious way acquire a faculty of existing without it. This "fallacy of the faculty" has been the death of no small number of the earth's inhabitants.

It is no uncommon circumstance for a patient to be dosed with a quart of brandy, or a gallon of wine, in twenty-four hours, every swallow occasioning a new organic resistance, and a further waste of vital power, and imperiling the patient's life, while the doctor is firmly impressed with the belief that the patient's breath remains in his body

only by virtue of the alcoholic stimulant. It is easy to account for this delusion. When the fever is up, the physician is afraid of death from its violence; but he knows the patient will not die, in ordinary cases, until the cold stage of the paroxysm becomes permanent. When the fever is down—that is, in the cold stage—the patient is pale, cool or cold, the features sunken, and the pulse low, natural consequences of the previous febrile excitement. The organism now requires rest, quiet, perhaps nourishment. But the doctor, fearing this depression will end in death, kindles up the fever again. So long as the system will respond to stimuli, so long as the vital powers will manifestly resist the morbid impression of the stimulant, the body is not absolutely death-struck, and the doctor has the satisfaction of knowing that the patient is not *now* dying. But this evidence of his existing vitality is the expenditure of a part of that vitality, hence, although the stimulant causes him to manifest more signs of life, it also hastens or endangers his death, for the simple reason that it causes a further waste of vitality.

But it may be objected that our theory of vital resistance, though applicable to those agents which produce *evacuation*, or increased action of the circulating system, will not explain the phenomena produced by the *narcotics*, which operate in a very different manner. Let us see. Medical books tell us that opium in small doses *suppresses* all secretions except the cutaneous, which it *promotes*. What is this but the effort of the vital powers, all concentrated, as it were, to expel it through the skin? In large doses opium always creates nausea, and usually vomiting, evincive of the effort of the vital powers to expel it at once from the stomach. The pure narcotics, as henbane, belladonna, stramonium, cicuta, prussic acid, etc., are really evacuants in relation to the nervous power. Being so deadly in their influence, they are met with an energy proportioned to their potency of dose, and the *shock*, as it were, is often sufficient to destroy the organism in a moment, like that from a Leyden jar, or a surcharged electric cloud. In very small doses the pure narcotics are thrown off more or less by all the excretory organs, but more especially the skin.

In conclusion, we may find a convincing illustration in the effects of the very Sampson of the allopathic materia medica—mercury. No medical books pretend to explain the *modus operandi* of this drug, but all agree that it *promotes all the secretions of the body*. It is this general effect upon all the secretions which causes mercury to be regarded as a universal alterative, and administered, too, so freely and so fatally in almost all the diseases incident to humanity. But *how* and *why* does mercury promote the activity of all the secreting organs? Because

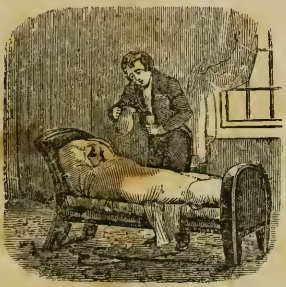
its operation is, although very slow and gradual, is chemically destructive to some of the constituents of all the fluids and solids of the body; hence it is every where met with active vital resistance, either to expel it at the natural outlets, or involve it in mucous, so as to neutralize or lessen its ruinous consequences while it remains in the system. Its universally remedial operation is only the evidence of universal war in the organism, the final result of which must inevitably be universal ruin, to a greater or less extent, of the vital powers.

CHAPTER II.

WATER-CURE PROCESSES.

The hydropathic appliances embrace all the usual methods of vapor, warm, tepid, cool, and cold bathing, besides a variety of processes which have had their origin in the development of Water-Cure as a system.

Fig. 164.



THE WET-SHEET PACKING.

The Wet-Sheet Packing.—This process, the *lien tuch* of the Germans (fig. 164), is admirably calculated to answer two general indications, which are manifestly leading ones in a long catalogue of maladies, both acute and chronic, viz., to reduce the heat of the body and the force of the circulation, and, as an alterative, to correct morbid and restore healthy secretions. It produces also, incidentally, a powerfully detergent or cleansing effect, and generally exerts a wonderfully sedative or soothing influence on the whole nervous system. The first disagreeable sensation of cold is usually soon followed by a pleasurable warmth over the whole surface. It is capable of superseding, to advantage, bleeding, antimony, salts, hydriodate of potassa (iodide of potassium), calomel, and opium, and a hundred other more or less injurious agents.

In fevers, and in all acute inflammatory disorders, it may be employed with a freedom exactly proportioned to the degree of morbid heat and force of the pulse; that is, continued, with frequent changes, until the temperature and circulation are reduced to the natural standard, and the skin becomes soft and perspirable. Much sweating is not usually to be desired.

In nearly the whole range of chronic complaints, there is one prevalent morbid condition, ever varying in intensity, yet consisting essentially in a deficiency of blood in the superficial and capillary vessels, and an accumulation or engorgement in the large internal vessels, with consequent congestion in some one or more of the viscera. To reverse this condition, relieve the overburdened internal organs, and supply the deficient external circulation, the wet-sheet process, aided by the proper auxiliaries, is the best known remedial agent.

Dr. Gully well remarks: "This process repeated day after day, and sometimes twice daily, at length *fixes* a quantity of blood in the blood-vessels of the entire skin, and thereby reduces the disproportionate quantity which was congested in the inner skin, or mucous membranes."

If any one doubts the purifying efficacy of this process, he can have a "demonstration strong" by the following experiment: Take any man in apparently fair health, who is not accustomed to daily bathing, who lives at a "first-class hotel," where they fatten their own chickens and pigs on the refuse matter of the kitchen, takes a bottle of wine at dinner, a glass of brandy and water occasionally, and smokes from three to six cigars per day. Put him in the "pack" and let him "soak" one hour or two; on taking him out, the intolerable stench will convince all persons who may be present that his blood and secretions were exceedingly befouled, and that a process of depuration is going on rapidly.

The time for remaining "packed" varies greatly in different cases. The average time is from thirty to sixty minutes, though in some few cases fifteen minutes is long enough, while others may remain enveloped two hours to advantage. Persons of highly nervous temperament, and rapid though feeble pulse, and those laboring under great debility with considerable irritability, should remain in the wet sheet only until the body becomes comfortably warm. Those having a more torpid circulation and phlegmatic temperament, unattended with much debility, may remain a much longer time.

Much of the comfort or disagreeableness of the process depends on the skill and dexterity of the attendant. There is at least as much science in applying wet cloths to the naked body as in rubbing in an

ointment or putting on a blister. A person may be wrapped up so slowly, loosely, and unevenly by an awkward hand, as to find the whole affair from beginning to end exceedingly uncomfortable; or the clothing may be so rapidly and nicely adjusted, as to give the patient an hour or so of actual enjoyment.

Light cotton, hair, or sea-grass mattresses, or even straw, for those accustomed to very hard beds, may be used for "packing." On one of these spread from three to five large thick comfortables, then a pair of soft flannel blankets, and, lastly, the wet sheet lightly wrung out, so as not to drip. Two pillows placed on the mattress are necessary for the head. The patient, lying down flat on the back, is quickly enveloped in the sheet, followed by the blankets and comfortables. A light feather bed may be thrown over the top, in which case two comfortables less will be required. If the feet remain cold, bottles of hot water should be placed to them. Headache is prevented or removed by the application of cold wet cloths. In wrapping up the patient, great care should be taken to turn the clothing snugly and smoothly around the feet and neck. For very delicate persons, the sheet should at first be wrung out of tepid, or even warm water. On coming out of the "pack," the plunge, douche, rubbing wet-sheet, or towel washing may be employed, as either is speedily indicated.

Some hydropathists recommend the sheet to be wrung as dry as possible, and others advise it to be used quite wet. I prefer a very wet sheet in all cases wherein the patient is not deficient in external heat. When the skin is very cold and torpid I would advise it to be as dry as the attendant can conveniently wring it.

Some persons, whose pores are pretty effectually closed up with bilious accumulations, find it rather difficult to get entirely warm at first. In a few days, however, the glow comes up readily, and it ceases to be dreaded. Such cases are benefited by a good deal of friction to the skin over the wet, and then the dry sheet.

There are some few patients, of weak vital energies and extreme susceptibility, who very soon get warm in the wet sheet, and immediately after grow chilly again; and in some cases, if they remain yet half an hour longer, a comfortable reaction will come on again. Such persons should be taken out, if possible, during the glow upon the surface. If it so happens that they get an unpleasant chill after coming out, a thorough rubbing, followed by fifteen or twenty minutes dry packing, will usually obviate all injurious consequences.

Headache, languor, muscular debility, and giddiness, if serious and long continued, generally indicate that the envelop has been continued too long. When they occur repeatedly the time should be shortened.

A *linen* is always to be preferred for "packing," more especially in warm weather.

The wet sheet is not a sweating process, as generally supposed, although frequently a moderate, and occasionally a copious perspiration takes place. It is permanently either a cooling or a heating process, according to the degree of envelopment. When the object is to reduce fever or inflammation, the patient should be lightly covered, and the wet sheet frequently renewed. In chronic diseases, when the intention is to produce reaction and develop the external circulation, an additional quantity of bedding secures this object. As a cooling process, it may always with safety be frequently repeated, until the force of the pulse and the preternatural heat are reduced to the normal standard. Under its judicious employment in chronic diseases, the skin gradually becomes softer, velvety, and more porous and delicate; its structure more firm, and its functions more vigorous.

The Half-Pack Sheet.—This is the application of the wet sheet as above to the trunk of the body only. It is milder, yet less efficacious, than the full pack. It is only employed on feeble persons, who have not sufficient vitality for the whole sheet, or as a preparatory measure for the entire envelopment.

The Douche.—The primary object of the douche (*doosh*) bath, fig. 165, is to arouse the activity of the absorbent system, and this it certainly accomplishes in a most powerful and effectual manner. It is well adapted to chronic enlargements of the viscera, tumors, swellings and stiffness of the joints, local attacks of gout and rheumatism, obstinate constipation, the incipient stage of tubercular consumption, and many other disorders. The force of the stream and time of application should be carefully adapted to the strength of the patient. Very nervous persons, and those subject to a determination to the brain, must resort to it with extreme caution. Generally the stream should be directed to the back of the neck, along the spine, hips, and shoulders; in chronic swellings of the joints the stream may be directed to the affected

Fig. 165

THE DOUCHE

parts; in cases of torpid bowels a moderate stream may be applied to the external abdominal muscles. No strong douche should ever be taken on the head, nor should it be long continued on any one spot about the spine or back bone.

Douches may be so constructed as to produce any degree of impression, from that which is scarcely appreciable, to one as powerful as the muscular system can endure, according to the size of the stream, its fall, pressure, etc. They may be *vertical*, *oblique*, *horizontal*, or *ascending*. Those most generally in use are perpendicular streams from one to two inches in diameter. Smaller streams, as inch and half inch are better in some cases. The oblique and horizontal streams can be more conveniently applied locally when indicated, and in many cases, as in difficult respiration, it is advantageous to have the bodily position erect during its application. The ascending douche is particularly valuable in piles, prolapsus of the uterus or bowels, constipation from debility, etc. The stream should not be forcible enough to cause absolute pain nor serious inconvenience; the stream may be half an inch to an inch.

Warm water douches have been employed but little comparatively, but I think they are destined to grow in favor. In many cases of rigidity of the muscles, painful swellings, chronic inflammations of the joints, in neuralgic affections attended with extreme nervous irritability, and in spasmodic and bilious colic I have known excellent effects from streams of warm water applied to the parts affected. They are also useful in obstinate constipation, retention of urine, amenorrhea, etc. As the object of a warm douche is to *relax* instead of contracting the muscles of the affected part, a small stream long continued is the best; it should be followed by the cold dash for a moment.

The *hose-bath* is a modification of the douche; it may be employed horizontally or obliquely to any part of the body, the force being regulated by a stop-cock.

The Rubbing Wet-Sheet.—This bath produces a strong and general determination to the whole surface. The shock is generally rapidly succeeded by vigorous reaction, which is further promoted and maintained by active friction. It is applicable in all cases wherein a strong diversion from the internal viscera, or the mucous membrane of the alimentary canal, to the skin, is required. It is more or less serviceable in nearly every condition of disease wherein the patient has sufficient reactive energy to prevent a permanent chill. In the primary stage of fevers, in the early stages of bowel complaints, colic, diarrhea, dysentery, cholera, etc., it is particularly valuable. In these

cases it should be applied frequently for a few minutes, and the skin rubbed energetically and perseveringly. In the great majority of skin diseases it is among the best resources of hydrotherapia. It is one of the best kind of "wash-downs" to follow the pack.

The rubbing wet-sheet is an admirable bath for the sedentary and studious; for exhaustion consequent on severe mental exertion; for mental disorders, and many states of insanity; for nearly all spasmodic and epileptic conditions; for delirium tremens; for night sweats, watchfulness, nightmare, etc.

When employed drippingly wet (*the dripping sheet*), a large tub or dripping pan is necessary for the patient to stand in. When wrung so as not to drip it may be used in any room or on a carpeted floor. The sheet is thrown suddenly around the patient's body, which it closely envelops from the neck to the feet, and the body is rubbed by the hands of the attendant outside the sheet; in ordinary cases five minutes are sufficient. Some prefer a larger sheet thrown over the head and reaching down to the feet, by which the patient can himself exercise by rubbing in front while the attendant rubs the back part of the body. I do not see any special advantage in this to offset its awkwardness. The patient can and should make active friction over the chest, abdomen, and lower extremities, if the sheet is thrown around the neck, leaving the head out. It is succeeded by the dry rubbing sheet, or rubbing with dry towels.

THE HIP OR SITZ-BATH.—The sitting-bath answers the several indications of tonic, derivative, and sedative. It is invaluable in weakness, irregularity, obstruction, and torpor of the lower organs of the pelvis and abdomen. Any common wash-tub will answer for its administration, though it is more convenient to have vessels made for the purpose, the bottom raised a few inches from the floor, the back side raised to rest against. The water, as a general rule, should cover the hips and lower portion of the abdomen. It may be of any temperature, from very warm to extreme cold, according to the case; and the time of application varies from five to thirty minutes. The cool and cold sitting-

Fig. 166.

THE SITTING-BATH.

baths are far the most frequently indicated, and the usual time is from ten to fifteen minutes.

In the cold stage of fever, the warm sitz-bath very much mitigates the severity of the chills, and, if followed by the cold-rubbing wet sheet when the hot stage of the paroxysm supervenes, will often break up the attack in a few hours. In acute inflammations of the liver, stomach, bowels, spleen, and kidneys, hip-baths should be used very frequently, conjoined with the plentiful use of tepid or cool water in injections. Debility of the external muscles of the abdomen, caused by the excessive use of tea and coffee, or crooked positions of the body, evinced by short breath, weakness in the small of the back, and trembling of the knees, is greatly benefited by this process, used as cold as can well be borne. A blanket is usually thrown around the patient during this bath.

The best *tonic* effect of hip-baths is secured by having them of short duration—five to fifteen minutes—and frequently repeated.

A *derivative* effect is obtained by longer baths—fifteen to thirty minutes—and at greater intervals. It must be noticed, however, that the effect of any bath is determined as much by the condition of the patient as the length of the bath. Tonic hip-baths are more or less derivative; but to get the greatest derivative effect, the bath should be continued as long as reaction is vigorous, but not carried to the extent of producing the second chill; if so, determination may take place to the internal organs instead of derivation from them. Derivative hip-baths should not be carried to the point of producing paleness or lividness of the lips, general shivering of the whole body, nor nausea at the stomach, for they would thus endanger congestion of the brain or lungs. In treating affections of the head and chest, for which this bath is one of our best resources, great caution should be exercised in managing them so as to secure a derivative without producing a revulsive effect.

Some of the effects of sitting-baths, usually called derivative, are really *sedative;* no matter, though, so long as they work curatively. In a general fever, for example, when the whole body is preternaturally hot and turgid, a long-continued bath of this kind operates as a refreshing and fever-assuaging sedative.

The temperature of the water, and its quantity, also have some influence in determining whether its effects shall be tonic, derivative, sedative, or repellant. The rule of practice, is to lessen the quantity of water, or raise its temperature, according to the coldness, torpor, and debility of the patient.

Fig. 167.

THE SHALLOW-BATH.

THE SHALLOW-BATH.—This, as usually employed, is a powerfully alterative, mildly derivative, and moderately sedative bath. It is sometimes used cool, seldom very cold, but generally tepid, from 65° to 75°. The common shallow-bath tub may be used, but a circular or oval tub, raised about twelve inches from the floor, is more convenient for the attendant. In private families any tub large enough for the patient to sit upright will answer. The water should be from four to six inches deep. During the bath the abdomen and lower part of the body should be well rubbed by the patient if able; if not, by an attendant; while the head is sprinkled and the back and chest rubbed by the attendant, who sprinkles those parts, or dips his hands occasionally in water. When there is no chilliness, a pail of cold water (*the pail douche*) should be poured on the chest and shoulders to complete the process. This bath may be employed from one to fifteen minutes with those who are very feeble and sensitive to cold, and from fifteen to thirty minutes with others. It is usually followed by the dry rub sheet; sometimes also by the hand rubbing. When used for a long time, the water is renewed as often as it becomes quite warm.

Many nervous and delicate invalids will find this the best bath to follow the wet-sheet pack. It is also one of the best leading baths in the treatment of cutaneous affections, in mineral diseases, in mercurial affections of the joints, in sick headache and "rush of blood to the head," in apoplectic, epileptic, paralytic, and hysterical affections, in 'sun-stroke," intoxication, delirium tremens, etc.

In some instances the half-bath has been continued for several hours with decided benefit. When there is uniform and preternatural heat of the surface, in any of the above-named diseases, it may be protracted as long as those symptoms can hold out, with perfect safety; but in all other cases short baths often repeated are preferable to very long ones; the former are never dangerous, the latter *possibly* may be.

THE HALF-BATH.—The half and shallow-baths are often spoken of as the same. Some authors make a distinction by calling the ordinary shallow-bath a half-bath, when the water is about one foot in

depth, so as to cover the lower part of the abdomen, as well as the lower extremities. This is in effect intermediate between the shallow-bath and full-bath, or plunge, and is employed when the reactive power of the patient admits of a stronger impression than the former, yet is not sufficient for the shock of the latter. It is specially adapted to those cases for which the shallow-bath is indicated, when they are complicated with great weakness of the external abdominal muscles, deficient action of the kidneys, obstructions of the liver, leucorrhea, menorrhagia, etc. In relation to time and temperature, it is to be regulated by the same rules as the shallow-bath.

Dr. Johnson *(Domestic Hydropathy)* says, in allusion to this bath: "Place me under the most unfavorable circumstances, viz., in the heart of a large town, let me have my fair average of all sorts of cases, new and old, acute and chronic, slight and severe, and give me the shallow-bath, the sitz, and the wet-sheet, and no other bath whatever, and let me have an opportunity of frequently seeing my patients—I would undertake to cure or relieve more cases than are now cured or relieved by the ordinary drug-treatment in the proportion of two to one." I think the doctor is safe enough. It would not become me to speak for London practice, but as for drug practice in New York, I would confidently undertake the same task with either one of these three baths, or with a pail of pure soft water and a crash towel, without either of them.

Fig. 182.

GOING FROM PACK TO PLUNGE.

THE PLUNGE-BATH.—Immersing the whole body up to the neck quickly, when the patient has room and opportunity to exercise his limbs under water, is all that is essential to the full benefit of this process. It is generally preferred after the sweating process, and very frequently after the wet sheet, by those who are able to bear the exertion. The patient wears the wrapping-sheet and blanket (fig. 168) to the bath, having his feet sufficiently released to walk, and as a useful precaution, wets the head and chest, and then plunges into the water, either head-foremost or feet-foremost, as he fancies. The shock produced is much less than most persons would suspect, while the reaction

is generally rap'd, equal, and extremely agreeable. It may be advantageously employed more or less in the majority of all chronic diseases which are not attended with strong determination to the brain, great disturbance of the circulation, or difficulty of respiration. It is one of the most pleasant and refreshing morning baths taken on first rising from bed; and by all, except the very feeble, it may be employed colder than any other bath can be, with equal comfort.

Invalids with lungs so tuberculated as to prevent a full inflation, do not bear the plunge well, nor persons laboring under organic affections of the heart, nor those laboring under dropsical accumulations of the chest or abdomen; in these cases it disturbs the circulation and respiration too much. But with all invalids or other persons who have moderate vigor and a pretty well-balanced circulation, with no serious local determinations or organic lesions, there can be no more agreeable or exhilarating bath.

A plunge-bath may be easily constructed wherever there is a running stream. A square plank box, four or five feet in depth, makes a good and cheap one; its dimensions may be large enough for a swimming-bath to advantage, if there is room.

The temperature of the plunge is usually from 55° to 65°, and the time for remaining in the bath varies from a very few seconds to two or three minutes, in chronic diseases; in high fever or general inflammation of the whole system, the patient may remain ten or fifteen minutes—at all events, until thoroughly cooled.

The Foot-Bath.—Most persons are aware of the intimate connection between the whole nervous system and the feet, manifested by the extraordinary susceptibility of the soles of the feet to external impressions; and such persons must readily appreciate the importance of this remedial appliance. The potency of mustard, onions, garlic, vinegar, ginger, pepper, and other pungents, applied to the feet, in a variety of aches, pains, cramps, and spasms, has long been celebrated among physicians and nurses. The intelligent hydropath will admit the importance of the principle—sympathy—upon which the employment of those articles has been based, while he will produce every desirable result of them all with simple water. As a derivative in affections of the head and chest, it is often used in connection with the sitz-bath, with which it may be advantageously alternated. To prevent or remedy habitual cold feet, it is absolutely indispensable in a hydropathic course. Active exercise, in this case, should generally precede and follow the cold foot-bath. The rules given for the regulation of the sitz-bath will apply to this. Any vessel large enough to admit the feet

and water enough to cover them ankle deep, will answer. The time is usually from ten to fifteen minutes.

Persons of very feeble circulation, and who are unable to take much exercise, should use shallow foot-baths for about five minutes, the water being not more than one or two inches deep. The feet or toes, or both, should be kept in motion during the bath. Walking foot-baths, where a stream of cool water can be found with a clean bottom, is a most efficient remedy for habitual cold feet, and one of the best appliances for chronic headache, restlessness, sleeplessness, and also one of the most excellent and efficient strengthening processes for almost all forms of female weaknesses and obstructions.

The warm foot-bath is often valuable to relieve sudden attacks of headache, and soothe the nervous system when unusually irritated. Many delicate invalids who are habitually liable to cold feet, will find the wet-sheet pack more pleasant and agreeable by putting the feet in warm water for three minutes before being enveloped.

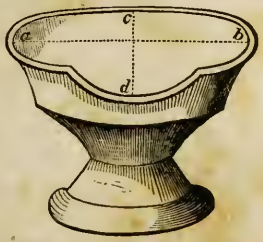
Fig. 169.

THE HEAD-BATH.

THE HEAD-BATH.—The common method of bathing the head is by folds of wet cloths, or a stream of water poured over the head. In all acute diseases about the head, attended with pain and increased temperature, those processes are sufficient, but in some chronic affections a powerful derivative or sedative effect is desired. For this purpose the patient lies extended on a rug or mattrass (fig. 169), the head resting in a shallow basin or bowl, holding two or three inches of water, the shoulders being supported by a pillow. It may be administered from fifteen to thirty minutes.

When the pouring head-bath is employed the patient lies face downward; the head is held by the attendant and projecting over the side of the bed; the bedding being protected by a sheet or blanket thrown around the patient's neck; a tub is placed under the head to catch the water. The water is poured from a pitcher or other convenient vessel moderately but steadily for several minutes, or until the head is well cooled, the stream being applied principally to the temples and back part of the head. This process is excellent in all high fevers, and in the early stages of colic and cholera morbus

Fig. 170.



VESSEL FOR THE HEAD-BATH

Fig. 179 represents a convenient vessel for a head-bath. Length from *a* to *b*, 11 inches; breadth from *c* to *d*, 8 inches; depth, 3½ inches; height from the floor, 7 inches. The bottom is concave.

The cold cloths, or pouring stream is beneficially employed in convulsions, delirium tremens, rheumatic affections of the head, transferred gout, epilepsy, apoplexy, nose bleed, inflammation of the brain, etc.

In chronic diseases of the eyes and ears, earache, partial or complete loss of hearing from debility of the auditory nerves, dimness of vision from local debility, morbid depositions in the humors or structures of the eye, chronic catarrh, etc., the bathing vessel is advantageous.

THE SHOWER-BATH.—This bath is greatly misused by many persons, and is generally sadly mismanaged by allopathic physicians. Cases like the following are everyday affairs in New York: A patient has been under drug-treatment a long time without benefit; he has been entirely unaccustomed to regular bathing in any manner, and has never taken a cold bath, nor has the doctor even hinted at any sort of a bath during his whole course of medication. But, getting discouraged, the patient begins to annoy his medical adviser with questions about the Water-Cure; the latter speaks in the highest terms of the remedial uses of water *in the hands of competent persons;* thinks it is a very good remedy indeed in many cases, *but in this particular case it probably would not answer; it might produce congestion!* Still the patient may, if disposed, try it and see—that is, on his own responsibility. He may try a shower-bath, and ascertain thereby how the treatment will be likely to operate. Influenced by these loose inuendoes, and without any precautions or regulations, the patient takes two, three, or half a dozen shower-baths. Each one gives him a disagreeable chill, perchance a violent headache, and makes him feel decidedly worse in every sense. He goes back to the doctor, who shakes his head portentiously, looks "wondrous wise out of all his eyes," and exclaims, "I was *afraid* it wouldn't work well; cold water is a very powerful agent; very dangerous when not properly managed."

Now the shower-bath is excellent in its place, but in almost all cases it is the very worst bath to commence on an invalid with. Generally patients require considerable preparatory treatment before they can

take it to advantage. Although it is more frequently prescribed than any other bath by the drug doctor, the hydropath would sooner dispense with it entirely than with any other.

The shower-bath can be employed profitably only by those who have a good degree of vital heat, and a rather active and pretty well balanced circulation. It is contra-indicated in very nervous and extremely susceptible persons, in those liable to nervous headache, palpitation of the heart, great determination to the lungs, or severely constipated bowels.

Whether it should ever be taken on the head is a controverted proposition. Many persons, to my certain knowledge, have taken it freely on the head as well as all over the body, as a daily bath, for years, not only without any unpleasant symptom, but with uniform pleasure and advantage. But I have known many invalids with whom it would occasion more or less headache or giddiness, when applied to the head, and none whatever when only taken upon the rest of the body. The safest general rule is to direct patients to incline the head forward so as to let the shock fall upon the neck, spine, and shoulders. It may also be freely applied to the chest and abdomen.

Its principal advantage is in affording a convenient morning bath; a good wash down after the wet sheet, when no other bath is specially indicated, and also after the hot and vapor baths.

In the stupor of drunkenness a smart shower of cold water often restores sensibility very promptly. The cold shower has recently been introduced into the penal transactions of our criminal code. Refractory culprits are often brought to prompt obedience by its terrors. The prisoners are said to dread it worse than the old-fashioned, barbarous methods of flagellation. It is certainly more humane, but is liable to do injury to those who are extremely susceptible, with a tendency to head affections.

This bath has long enjoyed considerable repute as a popular remedy for rickets and other cachetic affections of children. It is managed so injudiciously in home practice as to work more mischief than benefit, as the following anecdote will illustrate I once saw what was intended for a shower-bath, administered in this fashion; a good mother became anxious about her little boy, who was about a year and a half old; he appeared to be "poorly," without having any particular disease for which a name could be found. The doctor gave it oil, rhubarb, "a touch of calomel," elixir drops, worm seed, and strengthening things in abundance, but it stayed "poorly." Some kind neighbor advised showering, and the mother concluded to try it. The next morning which happened to be of a keen, blustering, November day, the

mother, at early sunrise, drew a pailful of water from the bottom of a deep well, stripped the child naked, placed it out-door on the bare cold ground, and then threw the pail-douche over it at a single dash! The result was a fever, which lasted the child a week. The child should have been placed in a tub in-door, and the water poured over it gently.

THE CATARACT-BATH.—This is a pleasant yet powerfully excitant bath. Dr. Johnson, from whose work I take the illustrative cut, thus describes it:

Fig. 171.

THE CATARACT-BATH.

In Fig. 171 *a* and *b* are two tin cylinders, containing six or eight gallons each. These are fixed at the top of the frame-work of an ordinary shower-bath, the common cistern and perforated plate being removed. By pulling a string, these cylinders are tilted so as to discharge their water, as is seen in the plate. The inner side of each cylinder should have a lip, to give a more forward direction to the cataract of water.

The cataract-bath may be employed for the same general purposes as the douche. It is a good substituto for the wave-bath, and for the plunge in those who cannot bear the exertion required by the latter.

THE DRY PACK, OR SWEATING-BATH.—Wrapping in the dry blanket is managed precisely as the wet-sheet packing, with the omission of the wet sheet. The flannel blanket comes in contact with the body, and a sufficient quantity of blankets, comfortables, or other bedding is thrown around to retain the animal heat. Very nervous and irritable persons should not be wrapped very tightly about the chest. A wet napkin should always be applied to the head, and the room should be well ventilated. The sweating process usually occupies two or three hours. Some few persons will perspire freely in less than an hour, and some will remain four or five hours without sweating much.

When the patient perspires with difficulty, exercising by extending the limbs forcibly, accompanied with deep, full inspirations, will very much accelerate the process. One, two, or three tumblers of water are taken at intervals during the envelopment. Dr. Johnson recommends a little allopathic auxiliary in the shape of "a pint of hot, weak,

black tea!" I would recommend the patient to abstain, teetotally, from all such nonsense.

The patient should never remain long enveloped after sweating has become copious; it is much better to perspire moderately and frequently. On coming out of the sweating-blanket, some form of cool or cold bath should be taken, as the plunge, douche, shower, shallow-bath, or dripping-sheet. The sweating process is one of the severest of the Water-Cure appliances, and must always be managed with care and discrimination. If the patient becomes very restless, or if troublesome headache, giddiness, or palpitation come on, he should be taken out. Patients will usually bear this application better after a few repetitions.

Many people suppose, and some medical writers represent—among whom is Dr. John Bell, in his able work on Medical and Dietetical Hydrology—that the sweating process is a regular part of the hydropathic routine. This is a great mistake; sweating is not the rule, but the exception in water-treatment. It is very seldom resorted to in any respectable establishment, and Priessnitz recommends it now much less frequently than formerly. It is the nearest approach to allopathic treatment of any of our processes, being, when long continued, depletive and debilitating.

The sweating process is not applicable to any particular disease by name, but to a particular condition of body which is found in several diseases. This condition is called *plethora* in medical books; it means over-fullness, grossness of the system. It is most frequently found in gouty and rheumatic subjects. All very fat or corpulent persons possess it, of course. It is the result of high living and indolence, or of active alimentation combined with defective depuration. Persons afflicted with that unsightly disorder, *obesity*, can be assisted down to the standard of normal bulk and personal comeliness by this manner of sweating, providing the alimentary supplies are also healthfully curtailed.

The dry-blanket packing is very useful for those invalids who are too feeble to exercise sufficiently to overcome the chill produced by the wet-sheet pack, or other cold applications. With such, too, wrapping for half an hour to an hour is a good preparatory measure for other baths, and it may follow any bath when desirable to thus assist reaction.

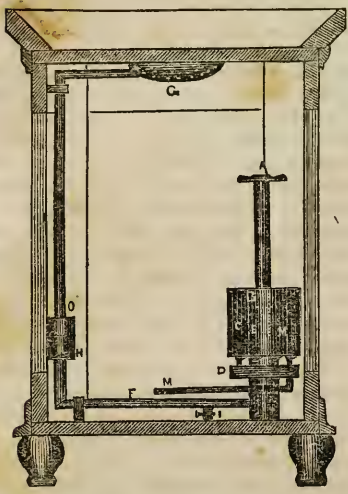
There is another class of invalids still who may find benefit from the dry packing; those who suffer occasionally, and at irregular intervals, severe rigors or chills, proceeding from enlarged liver or spleen, or slight ulcerations or tuberculations of the lungs. Though it will not prevent the chills, it will materially mitigate their severity, and thus

indirectly assist the final removal of the cause. For this purpose the patient may be enveloped at any time when the chills trouble him, and remain until comfortably warm and fatigued with the position.

THE VAPOR-BATH.—Somewhat akin to the sweating-blanket is the vapor-bath. Some hydropathic practitioners regard the vapor, and shower, and all other modes of water-treatment which were not prescribed by Priessnitz, as anti-hydropathic, as though nothing was ever to be learned save what Priessnitz personally taught, and nothing ever to be done save a routine repetition of his acts. Between the vapor-bath and sweating-blanket there is a difference in favor of the latter It does not disturb the circulation, quicken the pulse, or affect the respiration as much as does the vapor-bath, nor is it as liable to abuse from ignorance or carelessness. This last objection, however, applies rather to the usual than the necessary result of the vapor-bath; for, if not made too hot, nor administered too long, the effect is scarcely ever disagreeable. It is better adapted to torpid, phlegmatic constitutions, than to the nervous or irritable, other circumstances being equal. It is valuable—yet not equal to the wet-sheet—in many forms of skin-diseases unattended with much irritation. In sudden colds, coughs from suppressed perspiration, in the incipient stage of most forms of rheumatism, in the first access of simple fevers, in influenza, and in mercurial diseases, it is more especially serviceable. It should never be continued to the point of producing dizziness, faintness, nausea, nor great lassitude. Some form of cold-bath should always succeed it, as the shower or plunge. The average time for remaining in a vapor-bath, when the steam is as hot as can be borne without discomfort, is from fifteen to twenty-five minutes.

The "steam doctors" have brought vapor-bathing into unmerited disrepute by overdoing it. Many patients have been "steamed" so long as to produce a degree of muscular relaxation and vital exhaustion, not fully recovered from in years. The process is, in their hands, usually accompanied with hot and stimulating drinks, "composition," "No. 6," etc., and frequently followed by a lobelia emetic; all together making a power of medication which only very robust persons can endure without serious injury. Another error in the steam practice consists in not employing a sufficient amount of cold water after the hot vapor. Generally the patient, when excessively heated, is dismissed with a mere sprinkling of a pint or quart of cold water, when he should have a dripping sheet, plunge, or half-bath. A vapor-bath can be contrived in many ways. The invention of Mr. Jeremiah Essex, of Bennington, Vt., combines as many conveniences as any plan I have seen.

Fig. 172



COLD SHOWER, WARM SHOWER, AND VAPOR-BATH COMBINED.

Fig. 172 is an inside elevation of Mr. Essex's bath, showing the arrangement by which a person can take a cold or warm shower, or a vapor-bath at pleasure. The outside casing is the box of the bath, which may have screen sides, like the common kind; and the tubes below, as they are small, and lying on the floor (the one, F, may run below the floor), can be of no inconvenience. C is a small circular vessel of water surrounding the tube, E, seen in section, and communicates with it by a small opening inside, near its bottom. When the tube, E, is nearly filled, the vessel or chamber, C, contains water to the same height. F is a conducting pipe extending up into the tube, E; and A is the handle of a piston, which extends down into E, having its lower end made to force the water up through the pipe, F, past the valve, H, into the shower vessel, G. This gives a cold shower-bath. To make a warm bath, D is a lamp placed under the vessel, E, which heats the water, when it may be forced up as in the cold shower.

To make a vapor-bath, the pipe, M, seen partly in section, is attached near the top of the vessel, C, and it has holes at its lower end to let the vapor escape into the chamber. When used for a vapor-bath, the piston should be withdrawn, and the inside hole in the vessel, C, closed up, when the lamp will generate the steam in a short time. The top of the vessel, C, to the tube, E, is made of a funnel shape, as represented by B, to allow the water to be easily poured in. I is a faucet to drain off the water that may be in the pipe, and there is an attachment to the outside of the valve-case, O, to lift the valve, H, to drain off the water above.

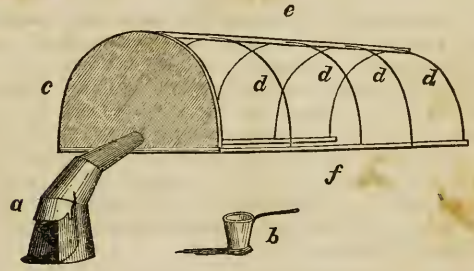
Hot stones or bricks may be used to generate vapor. The patient may sit naked on an open-work chair, with a couple of blankets pinned around the neck; a small tub or a common tin pan, holding a quart of water, is placed under the chair, and red-hot bricks or stones occasionally put into the vessel, so as to keep the vapor constantly rising from the surface of the water.

Another very simple plan is this: Procure a tin boiler of one or two gallons measure, with a tin pipe having two or three joints and a single elbow. The boiler may be heated on any ordinary fireplace or furnace; the pipe can be conducted under a chair or box on which the patient may sit, covered with blankets from the neck downward. The vapor

or steam may be increased or diminished by regulating the position of the boiler over the fire.

The sweating-cradle (fig. 173) is a convenient apparatus for such invalids as are obliged to keep the bed.

Fig. 173.



PERSPIRATORY, OR SWEATING-CRADLE.

Fig. 173 is a drawing of the perspirator, or sweating-cradle. *a* is a tin or copper bent funnel-shaped chimney, with a door, which is seen standing open. The small end of this chimney is open. The large end below has a tin bottom, with a hole in it to receive the little upright tin saucepan, *b*; *c* is the wooden bottom or end of the cradle, with a hole in it to receive the small end of the chimney, into which it fits accurately, but easily; *d d d d* are hoops of wire or wicker; *f* is a long, narrow piece of wood, into which the ends of the hoops are inserted; *e* is a similar piece of wood running along the top, and perforated by the hoops.

When the cradle is to be used, the clothes are to be taken off the bed, and the patient is to lie down on his back, with his head on the pillow. The cradle is then to be placed over him as high as his throat, its wooden bottom being at the foot of the bed, even with the bedstead. It is now to be covered with the whole of the bedclothes, and an additional blanket or two. The clothes are to be neatly tucked in every where, so as not to let out the heat at any point. But they must not hang down over the wooden bottom, and the foot valance of the bed had better be tucked up out of the way. The tin chimney must be kept clear of all clothes. Every thing having been thus neatly prepared, the tin saucepan, *b*, is to be filled three-quarters full with alcohol, and the spirit is to be set on fire. Then, taking hold of the long, straight handle of the saucepan, it is to be carefully let down through the hole in the bottom of the chimney, and the door closed.

THE WAVE-BATH.—This process consists merely in extending the body at length in a swift current of water, the patient holding on to a rope, or some other contrivance, to enable him to keep his position. It helps to make an amusing variety in the watery part of our materia medica, but has no other advantage not obtainable by the douche and plunge.

THE RIVER-BATH.—This amounts practically to an out-door, cold,

or tepid plunge-bath, according to the temperature of the water. Invalids should not, as a general rule, bathe in the rivers more than from ten to twenty minutes, when the water is tepid; at all events they should avoid great fatigue and the second chill. When the water is cold the time must be correspondingly diminished.

The Rain-Bath.—At some of the water-cures, patients have amused themselves with rain-water bathing whenever the propitious clouds have furnished the requisite shower. For those who are able to walk rapidly a mile or two, a rain-bath is excellent. The constant evaporation from the surface and the active exercise effect a rapid "change of matter;" and the process seems to combine the virtues of the wet-sheet pack and the dripping sheet in an efficacious manner. It is scarcely necessary to add that the patient should be dressed in light, thin clothes during the walk, and on returning to his room be well rubbed with the dry sheet, and keep up moderate exercise for half an hour or so after dressing.

Fountain or Spray-Bath.—This is a modification of the shower or douche-bath, or rather a combination of both. It consists of a number of small streams thrown off laterally, and diverging as they recede from the fountain. It makes a pleasant and very excellent application to the chest and abdomen, in affections of the viscera of those cavities, when the stronger impression of the douche cannot be borne, or is not indicated. Dyspeptics and consumptives can generally employ it more or less to advantage. It is a good process in pleurodynia, or pain in the side, in lumbago and neuralgia, and in partial palsy or extreme debility of the muscles of any part. Applied to the pelvic region, it is well adapted to excite functional action in atonic states of the organs, amenorrhœa, chlorosis, constipation, suppression or retention of urine, etc.

Portable Shower-Bath.—This is a modification of affusion, the water being showered instead of poured over the body, and in effect it amounts to precisely the same thing as the ordinary process of affusion. Convenient machines, holding two quarts or more, for showering by hand, are made by most of the tinsmiths.

The Affusion-Bath.—Pouring water over the neck, chest, and shoulders, the patient standing in a tub when it is desirable not to wet the floor, is called affusion. It is as good as any other form of bath where its indication is simply to cool the body, as in the hot stage of

fevers and active inflammations. Dr. Currie employed affusions extensively, and with remarkable success, in the treatment of scarlet fever, measles, small-pox, and other diseases, at Liverpool, England, half a century ago; but, unfortunately, the medical faculty of the present day, who acknowledge the superior success of his practice, do not see fit to imitate it. Affusions are performed with tepid, cool, or cold water, according to the degree of morbid heat attending the disease.

Towel or Sponge-Bath.—Washing the whole surface of the body with a towel or sponge is a very good prophylactic; and it may be employed in water-treatment as a substitute for various other baths, when the requisite apparatuses for the latter are wanting. The peculiar advantage of this bath is, it can be taken at any time and place, whenever and wherever desired. The towel is preferable to the sponge, because its friction is more perfect and uniform. I should be unwilling to dress, on rising from bed in the morning, without first rubbing the whole surface with a wet towel, unless some other general bath was accessible; and a towel and quart of water can always be had at a hotel or on board a steamboat. Five minutes can never be employed in any more profitable way. That parent can hardly be said to "train up a child in the way it should go," who does not instruct it in the use of a towel wash, or some other bath, every morning, at all seasons of the year.

Wet-Dress Bath.—This is a modification of the wet sheet, enabling the patient to dispense with the services of an attendant—a mode of self-packing. A linen sheet is fashioned into the form of a night-dress, with large sleeves; and after the bed is prepared, the dress can be wet and thrown on; the patient can then get into bed, and wrap himself sufficiently to get a very good warming up. If the bedclothes are not too heavy, nor wrapped too tightly, almost any person, not extremely feeble, can remain in this wet dress all night without the least injury, shocking as the idea may be to our allopathic friends.

Warm and Hot Baths.—These are objected to by some German hydropaths, as not being Priessnitzian, but for no other reason that I can imagine. They are, however, only occasionally employed at the American establishments, not being a regular part of any judicious course of treatment. But for quieting particular symptoms, and allaying excessive nervous irritability, they are sometimes eminently serviceable. In cramps, colic, spasms, and convulsions, they operate ad-

mirably. It sometimes happens that a patient, while under treatment, will, without any unusual exposure, experience all the symptoms of a severe cold, feverishness, headache, sensitiveness to the atmosphere, chilliness, and various aches and pains. All these disagreeable symptoms can generally be removed at once by a hot bath for ten minutes; and if the bath is succeeded by a pail douche, shower or dripping sheet, no appreciable debility will result. Patients who have taken large quantities of mercury, antimony, or nitre, are peculiarly liable to febrile disturbances, and to occasional swellings of the joints and stiffness of the muscles, which a warm or hot bath at once relieves. For all of the purposes above intimated the bath should be as warm as the patient can bear without discomfort; a temperature that is *warm* to one may be *hot* to another; the proper temperature ranges from 90° to 110°.

THE SWIMMING-BATH.—The exercise of swimming is eminently health-preserving, and might with propriety have been treated of in our hygienic department; but as it is also eminently therapeutic in some forms of chronic disease, the subject is not inappropriate here. For that large class of invalids who are consumptive from feeble lungs and contracted chests, and for a still larger class of dyspeptics, who are costive from torpid or contracted abdominal muscles, there is no better exercise than that of swimming. All persons, too, whether invalids or not, ought to know how to swim, on prudential considerations.

As all the exercises involved in the various methods of learning to swim are just as serviceable to the invalid or well person, as those which may be practiced after the art is acquired, and for the purpose of enabling the inmates of hydropathic establishments, where suitable streams or ponds of water can be found, to do themselves two services at once, I copy from one of Fowlers and Wells' publications the following illustrations:

Fig. 174.

SWIMMING WITH A BLADDER.

Various supports may be resorted to while the learner is getting accustomed to the necessary motions. Corks and bladders are convenient. Fig. 174 represents a bladder, well blown, and fastened over the shoulders by a rope passed under the chest. Large pieces of cork may be attached to each end of a rope and used for the same purpose. The supports

must always be carefully secured near the shoulders, for, should they slip down, they would plunge the head under water.

Swimming with the plank (fig. 175) has two advantages. The young bather has always the means of saving himself from the effects of a sudden cramp, and he can practice with facility the necessary motions with the legs and feet, aided by the momentum of the plank. A piece of light wood, three or four feet long, two feet wide, and about two inches thick, will answer very well for this purpose. The chin may be rested upon the end, and the arms used, but this must be done carefully, or the support may go beyond the young swimmer's reach.

Fig. 175.

SWIMMING WITH THE PLANK.

The rope (fig. 176) is another artificial support, which has its advantages. A rope may be attached to a pole, fastened—and mind that it be well fastened—in the bank, or it may be attached, as shown in the engraving, to the branch of an overhanging tree. Taken in the hands, the swimmer may practice with his legs, or by holding it in his teeth, he may use all his limbs at once. The rope, however, is not so good as the plank, as it allows of less freedom of motion, and the latter might easily be so fixed as to be laid hold of by the teeth, and held securely.

Fig. 176.

SWIMMING WITH THE ROPE.

Wherever a descending grade can be found, the learner can soon become a good swimmer, with no artificial assistance, by wading in the water up to the neck, and then paddling to the shore.

In swimming, the feet should be about two feet below the surface. The hands should be placed just in front of the breast, pointing forward, the fingers kept close together, and the thumb to the fingers, so as to form a slightly hollow paddle. Now strike the hands forward as far as possible, but not bringing them to the surface; then make a sweep backward to the hips, the hands being turned downward and outward; then bring them back under the body, and with as little re-

sistance as may be, to their former position, and continue as before. The hands have three motions—First, from their position at the breast, they are pushed straight forward; second, the sweep round to the hips, like an oar, the closed and hollowed hands being the paddle portion, and their position in the water and descent serving both to propel and sustain the body; and, third, they are brought back under the body to the first position.

Having learned these motions by practicing them slowly, the pupil should proceed to learn the still more important motions of the legs. These are likewise three in number: one of preparation, and two of propulsion. First, the legs are drawn up as far as possible, by bending the knees, and keeping the feet widely separated; second, they are pushed with force backward and outward, so that they spread as far as possible; and, third, the legs are brought together, thus acting powerfully upon the wedge of water which they inclosed.

Some works upon swimming advise that the propelling stroke of the arms and legs should be used alternately; but this is not the method used by good swimmers, or by that best of teachers, the frog, of whom I would advise all new beginners to take lessons. It is better that the feet should be brought up at the same time that the hands are carried to their first position; the propelling strokes may then be combined so as to give the body its most powerful impetus, as a boat is rowed best with simultaneous strokes.

The motion in the water should be as straight forward as possible, and the more the head is immersed the easier is the swimming. Rising at every stroke—*breasting*, as it is called—is both tiresome and inelegant.

All these movements should be made with slowness, and deliberately, without the least flurry. The learner will soon breathe naturally, and as the motions are really natural, he will not be long in acquiring them. If he draw in his breath as he rises, and breathe it out as he sinks, he will time his strokes, and avoid swallowing water. Those who have been accustomed to fresh water must be particularly careful when they go into the sea, the water of which is very nauseous.

Fig. 177.

PLUNGING OR DIVING.

In leaping into the water, feet first, which is done from rocks, bridges, and even from the yards and masts of lofty

vessels, the feet must be kept close together, and the arms either held close to the side, or over the head. In diving head foremost, the hands must be put together, as in the engraving (fig. 177), so as to divide the water before the head. The hands are also in the proper position for striking out.

Treading the water (fig. 178) is a favorite position, and useful as a means of resting in swimming long distances. The position is perpendicular; the hands are placed upon the hips, as in the vignette, or kept close to the side, to assist in balancing the body, being moved like fins at the wrist only. The feet are pushed down alternately, so as to support the head above water; and the body may be raised in this way to a considerable extent. While in this position, if the head be thrown back, so as to bring the nose and mouth uppermost, and the chest somewhat inflated, the swimmer may sink till his head is nearly covered, and remain for any length of time in this position without motion, taking care to breathe very slowly.

Fig. 178.

TREADING WATER.

In swimming on either side (fig. 179), the motions of the legs have no alteration, but are performed as usual. To swim on the left side, lower that side, which is done with the slightest effort, and requires no instructions. Then strike forward with the left hand, and sideways with the right, keeping the back of the latter to the front, with the thumb side downward, so as to act as an oar. In turning on the other side, strike out with the right hand, and use the left for an oar. To swim on each side alternately, stretch out the lower arm the instant that a strike is made by the feet, and strike with the other arm on a level with the head at the instant that the feet are urging the swimmer forward; and while the upper hand is carried forward, and the feet are contracted, the lower hand must be drawn toward the body. This method is full of variety, and capable of great rapidity, but it is also very fatiguing.

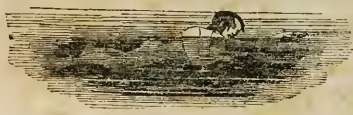
Fig. 179.

SIDE SWIMMING.

Thrusting (fig. 180) is a beautiful variety of this exercise, and much used by accomplished swimmers. The legs and feet are worked as

in ordinary swimming, but the hands and arms very differently. One arm, say the right, should be lifted wholly out of the water, thrust forward to its utmost reaching, and then dropped upon the water with the hand hollowed, and then brought back by a powerful movement, pulling the water toward the opposite armpit. At the same time the body must be sustained and steadied by the left hand, working in a small circle, and as the right arm comes back from its far reach to the armpit, the left is carrying in an easy sweep from the breast to the hip. The left arm is thrust forward alternately with the right, and by these varied movements great rapidity is combined with much ease.

Fig. 180.



THRUSTING

Swimming on the back (fig. 181) is the easiest of all modes of swimming, because in this way a larger portion of the body is supported by the water. It is very useful to rest the swimmer from the greater exertion of more rapid methods, and especially when a long continuance in deep water is unavoidable. The swimmer can turn easily to this position, or if learning, he has but to incline slowly backward, keeping his head on a line with his body, and letting his ears sink below the surface. Then placing his hands upon his hips, he can push himself along with his feet and legs with perfect ease and considerable rapidity.

Fig. 181.

SWIMMING ON THE BACK.

The hands may be used to assist in propelling in this mode, by bringing them up edgewiso toward the armpits, and then pushing them down, the fingers fronting inward, and the thumb part down. This is called "winging."

The hands may be used at discretion, the application of force in one direction, of course, giving motion in the other; and the best methods are soon learned when once the pupil has acquired confidence in his buoyant powers.

Fig. 182.

FLOATING.

Floating (fig. 182) is so useful a part of the art of swimming, that it cannot be

too soon obtained. In salt water, nothing is easier; and in fresh, to most persons, it requires but the slightest exertion. The feet should be stretched out, and the arms extended upward, so as to be at least as high as the top of the head, and under water. The head must be held back, the chin raised, and the chest expanded. The hands will easily keep the body in this horizontal position, and by breathing carefully a person may float at ease for hours. Could a person, unable to swim, but have the presence of mind to take this position, he could scarcely drown..

To *beat the water*, the legs are raised out of it alternately while swimming on the back, the body being sustained by the hands.

While swimming on the breast, one leg may be carried backward, and taken hold of by the opposite hand, and the swimming continued with the leg and hand kept unemployed. This is said to be useful when taken with the cramp in one leg.

Swimming under water should be done with the eyes open. If you would swim midway between the bottom and the surface, make the strokes of the arms and the hands inward, *i.e.*, toward you, as if you would embrace the water by large armfuls, keeping the thumbs turned rather downward. These are most important manœuvres. You are thus enabled to pass unseen across a river or branch of water, or to search for any thing which has fallen to the bottom, and also to rescue any one who is drowning. Beating, and swimming under water should not be attempted until the swimmer becomes expert in the other processes.

Eye and Ear Baths.—Various contrivances have been employed to bring the bathing processes to bear on the eyes and ears more powerfully than by means of wet cloths. The best are ascending, or obliquely ascending douches or showers. The force should always be moderate, but may be applied for a considerable time. They are useful in chronic inflammation, unattended with much pain or intolerance of light, partial blindness or deafness from torpor of the nerves or obstruction of the vessels, weakness of vision without preternatural sensibility, specs, incipient amaurosis, gathering in the ears, etc.

The Nasal-Bath.—Sniffing water up the nostrils, or drawing it so far into the nasal cavities as to be ejected by the mouth, is very useful in chronic inflammation, and in a relaxed or weakened state of the mucous membrane of the nose. In common colds, and catarrhal affections, the process is salutary. For debility, relaxation, or dryness of the mucous membrane from the use of snuff, it may be employed perseveringly to advantage. For nose-bleeding, the water should be

as cold as possible. After the removal of soft polypi from the nostrils, iced-water should be employed frequently to constringe the vessels. In employing the nasal-bath, the water should be taken up by gentle, full inspirations, not by a sudden jerking motion, as this often gives pain and increases irritation.

The Oral, or Mouth-Bath.—Gargling the mouth with pure cold water should not be omitted in inflammatory affections of the throat or palate. For sore or swelled gums, toothache, hoarseness, and all vitiated secretions, cool or cold water should be frequently held in the mouth until it becomes warm, and often repeated. In apthous or cankerous affections of the mouth, water should be employed in the same way. Relaxation or falling of the *uvula*, or soft palate, can generally be relieved or cured by gargling perseveringly with the coldest water, or by holding lumps of ice in the mouth. Tobacco-chewers should first abandon the filthy habit, and then employ the cold mouth-bath to restore the natural sensibility of the mucous membrane, and a healthful secretion of saliva.

The Arm-Bath.—For old ulcers, and recent or chronic swellings of any part of the arm, holding the affected part in cold water from fifteen minutes to an hour, will greatly assist in healing the ulcer or absorbing the swelling. Eruptive and rheumatic affections, in fact, all morbid conditions of the upper extremities, attended with preternatural heat, should be treated locally, by holding the part diseased in cool or cold water, or wrapping it in wet cloths, to be frequently changed, until the temperature becomes natural. In erratic complaints, which are liable to change the seat of inflammation, as with gout, rheumatism, especially mercurial rheumatism, care should be taken to discontinue the cold application as soon as the morbid heat is thoroughly subdued. When cold applications increase the pain, warm or hot may be substituted.

The Hand-Bath.—Habitual coldness of the hands, or numbness, is relieved by holding them frequently in very cold water, rubbing them smartly at the same time. Warty excrescences are often cured by chilling the hands severely by holding them a long time in the coldest water.

The Finger-Bath.—This is employed for felons or whitlows, and other similar affections. The temperature of the water should, in all cases, be that which feels most agreeable during its application

THE LEG-BATH.—The lower limbs are much more liable to chronic swellings, ulcers, gouty and rheumatic enlargements, etc., than the upper, on account of the adverse relation of the force of gravitation to the weakened vessels. The knee-joint is occasionally affected with a chronic inflammation of its membranes—*synovitis*—for which the leg-bath is serviceable. A tin vessel, shaped something like a boot, large and long enough to take in the leg above the knee, is a convenient means of administering this bath. If the patient is crippled, an India-rubber bag, constructed with straps, by which it may be hung upon a chair, or fastened to the side of the bed, is more convenient. It may be employed from fifteen minutes to one hour. There is no danger of producing metastases, or driving the disease to internal parts, in any form of rheumatic or gouty inflammation, provided the application is not continued beyond the point of reducing the temperature to the natural standard.

THE DROP-BATH.—This process is not often resorted to, nor is it even mentioned in some hydropathic books. Still it is sometimes serviceable, and ought to be understood. Wiess gives the best description of it:

"This term is applied to single drops of water falling from a height of several fathoms. A vessel is filled with *very cold* water, and furnished with a small aperture, through which the water passes in the form of drops. The small aperture should be partially closed by a plug, to prevent the drops from following each other in rapid succession. By these means their operation is considerably increased, and it becomes yet more potent if we allow the drops to fall upon a particular part at certain periods, and rub the part during the intervals. The reaction about to commence will indeed be thus interrupted, but will afterward make its appearance in a more powerful and energetic form.

"The violent excitement and irritation of the nervous system produced by these baths, render it necessary to restrict the use of them to half an hour; nor are they, indeed, adapted for vital parts, or such as are abundantly supplied with nerves.

"They are often used with more effect in obstinate and chronic cases of paralysis than the douche or affusion, with which they may alternate. Powerful and continued friction with a horse-hair glove is never in this case to be neglected after the baths."

THE AIR-BATH.—This is not quite a *water*-cure process, but as air, as well as water, in all its adaptations to health-producing purposes, belongs to the Water-Cure system, the air-bath may be properly con-

sidered in this place. It consists of the sudden exposure of the whole body, in a state of nudity, to cool or cold air, or even a strong current. It is employed under precisely the same regulations as a cold-water bath. It is certainly a very invigorating process, and may always be safely applied to the whole body when the body is in a sensible glow or when the temperature is above the natural standard, and generally, also, when the temperature is at the natural standard, provided there is no sensation of chilliness present. It is useful, moreover, to expose any painful or inflamed part to cold air, at any time when the sensation of cold is agreeable. The air-bath has sometimes followed the wet-pack, the same friction, exercise, etc., being employed to keep up comfortable reaction after it.

Sitting naked in a cold room for from ten minutes to an hour has been practiced by some persons as a hygienic measure. There are few persons who cannot bear a moderate degree of such exposure to advantage. Those of feeble circulation would do better to walk, jump, dance, or exercise in some other way. Franklin, whose practical sagacity and keen observation have attained a world-wide celebrity, accustomed himself to sit and read half an hour or an hour, on rising in the morning, before dressing.

Walking the room in a state of entire nudity, has been resorted to for the purpose of promoting sleep in very restless, dream-disturbed individuals, and it is said to conduce remarkably to quiet and refreshing sleep. I have known the experiment tried frequently, and always with good effect.

Patients suffering from fevers and inflammatory disorders, under the popular practice, generally have their sufferings greatly aggravated by too much bed-clothing. From a vague apprehension of catching cold, they are half stifled with excess of heat. There is no danger whatever of cold air in any quantity or degree in such cases, so long as the whole surface is preternaturally hot

Fomentations.—Warm and hot fomentations are useful in a variety of morbid conditions. They are sedative and relaxant. and are appropriate in cases of spasmodic pains, muscular contractions, periodical headaches, hysterical convulsions. etc.. when the state of the system is not actively inflammatory, nor the local part preternaturally hot. In the latter case, cold applications are the most efficacious to alleviate pains or cramps. A very good and perfectly safe rule for all practical purposes, in the selection of cold, cool, warm, or hot local applications, is the sensations of the patient. That temperature which feels the best is the best. This rule will apply to cramps, spasms, colic, tooth-

ache, backache, erratic and irregular pains from various chronic diseases, lumbago, pleurodynia, etc.

But it must be recollected that all very warm or hot applications are always for occasional, never for constant employment. They are to be regarded in every case as temporary expedients, specially intended to quiet pain, subdue local irritation, and remove irregular muscular contractions, or as adjuvants to the general curative course; and rightly managed with this view, they are highly important as well as pleasant resources. They produce temporary relaxation, but no permanent debility when used in connection with more or less cold bathing, as would be the case were they employed alone.

The French method of hot fomentations, so highly commended by Dr. Gully, is as efficacious and perhaps more convenient than any other in use: A piece of flannel thrice-folded is put into a dry basin, and very hot water poured on it, sufficiently to soak it. The flannel is then put into the corner of a towel, which is twisted round it, and wrung until the flannel is only *damp*. It is taken out of the towel, and immediately laid over the part to be fomented, and upon it is placed a double fold of thick flannel, dry, or part of a light blanket. The patient then, if it be the abdomen which is fomented, draws the ordinary bedclothes over him, and remains quiet for five or six minutes, when another flannel freshly wrung out is applied, the former one being withdrawn.

The cloths seldom require changing more than three or four times. Generally relief is obtained in ten or fifteen minutes. I have very often witnessed the best effects from this fomentation in nervous and dyspeptic headaches, in *globus hystericus*—the sense of suffocation often accompanying hysteria, and in painful menstruation. It is also frequently effectual in relieving, for the time, asthmatic fits, convulsions from teething or indigestion, neuralgia in the head or face; it will generally also produce relaxation of the bladder or bowels, in cases of retention of urine and severe constipation. In those severe derangements of the stomach and liver, attended with excessive nausea, severe retching and vomiting, intolerance of food and drink, etc., its use, in connection with the pouring of cold water over the back of the head and temples, will usually afford prompt relief, as I have many times experienced. For all these purposes the fomenting cloth should be large enough to cover half or two thirds of the surface of the abdomen.

There are some delicate invalids, of bloodless skin and feeble vitality, who find it extremely difficult to get comfortably warm in the wet sheet, and such may be very much assisted by a fomentation to the abdomen for five minutes before and after the pack.

Rest, and not exercise, should succeed the application of hot fomentations, except when they are employed as an auxiliary to and followed by a cold bath.

I have thus far spoken only of hot fomentations to the abdomen; and indeed in nine cases out of ten where this process is indicated at all, the place and manner described will answer all purposes. Yet in various local, spasmodic, or periodical pains they may be applied as near the part affected as possible. In affections of less severity, wet cloths of any kind, applied as hot as can be borne, will prove sufficient.

BANDAGES.—These may be local *warming* or *cooling* processes, as indicated, and answer all the purposes of the awkward, bungling, and expensive machinery of liniments, lotions, poultices, embrocations, blisters, rubefacients, epispastics, cuppings, issues, burnings, and other external drug appliances of the old school.

A *warming bandage*, or compress, is simply one or more folds of linen cloth, wet in cold water, applied to the part affected, and covered with a dry cloth or other material, to retain the animal heat.

A *cooling bandage*, or compress, is a similar wet application without the dry covering, or with the covering so light as to allow the animal heat readily to pass off. In both cases the cloth is to be renewed as often as it becomes dry. As usually managed, these compresses are both cooling and warming, the first impression being cold, and the reaction leaving a glow upon the surface; but they can be made to produce a constantly cooling effect by very lightly covering and frequently changing them, or a very heating effect by covering them with flannel or other non-conducting material.

Coarse linen cloth, as common crash toweling, is the most suitable cloth to be wetted; and for the dry covering, the same material, or any common muslin, will answer in warm weather, and soft flannel in cold weather. India rubber, gutta percha, and oiled silk have all been in repute, and a few years ago were very generally employed for coverings. I regard them all as objectionable. They do indeed serve to prevent evaporation, and retain more perfectly the animal heat, and they also keep the part moist longer; and they seem, too, to have a more drawing or derivative influence, if the more ready production of eruptions or boils indicates such influence. But they retain the effete perspirable matter which should pass off; and their non-conducting, or non-electric property renders them relaxing and weakening to the cutaneous function.

It seems to me that, *in all cases*, cloth coverings are the best. If they produce a less number of boils or less painful eruptions, the cure

will nevertheless be as prompt and even more perfect. When the skin is torpid and cold, Canton or soft, light, woolen flannel answers every purpose; and if necessary, for very feeble patients who are unable to take much exercise, two or three thicknesses may be used

THE CHEST-WRAPPER.—This is advantageously employed in nearly all chronic diseases of the chest, as incipient consumption, bronchitis, in the very early stage of hydrothorax, or dropsy of the chest, spasmodic or periodical asthma, etc. It may be made of crash toweling, or two or three folds of muslin, and fitted, with arm-holes, loosely to the trunk of the body from the neck, nearly or quite down to the hips. The outside covering is a similar wrapper, made of the same material, or of flannel. The inner, or wet wrapper, is tied as tightly around the body as desired by tapes, which are attached to the top, bottom, and middle, and the outside or dry wrapper is either tied around it, or the inner one is buttoned to the outer.

There is some discrepancy in the views of different hydropaths, as to whether the wet cloth should extend entirely around the body, or a few inches over the spine be left uncovered. Here again, as in most of the vexed questions which occur in hydropathic bathing, the feelings of the patient are our best guide. If the wet cloth over the spine does not produce any disagreeable chilliness, pain, or uneasiness, different from what is experienced when the partial wrapper is worn, I would have it entirely encircle the trunk; otherwise a space of from four to six inches in the center of the back should be uncovered by the wet cloth.

This may be worn day and night for several weeks, provided it produces no uncomfortable chilliness during the day, and does not become so warm and dry as to make the patient restless during the night. In the former case it should only be worn during the warmest part of the day, or during the time allotted to exercise, or from the morning bath until noon, or from the forenoon bath until evening. In the latter case it may be worn during the day, and omitted at night. It usually requires wetting when worn constantly, in the morning, toward noon, toward evening, and at bedtime.

THE ABDOMINAL WRAPPER.—The *wet girdle*, or abdominal compress, as this is generally called, is more generally employed than any other local hydropathic application. Derangements of the digestive organs are so prevalent nowadays that those who do not thus complain are exceptions to the general rule, and for all of these complaints this

bandage is appropriate. It is also serviceable in all chronic diseases of the liver, and in acute diseases of the abdominal viscera, as inflammation of the stomach and bowels, cholera, dysentery, cholera morbus, diarrhea, etc., it is always employed with benefit.

A great deal of ingenuity has been wasted in contriving abdominal compresses. But the best invention of all is three yards of common crash towel cloth. One half of this is wet, and moderately wrung; the wet end is applied to the side of the abdomen, then the bandage is passed across the abdomen, and around the body, followed by the dry half. This brings two folds of the wet part over the front of the abdomen, and one behind. Whether it is to be extended entirely around the body, must be determined by the rule mentioned as applicable to the chest-wrapper. The proper crash cloth is from twelve to sixteen inches wide, and covers the trunk from the short ribs to the hips, descending a little over the latter. As with the chest-wrapper, it may be worn constantly or occasionally. It should never be applied so tightly as to hinder in the least free respiration. It may be kept in place by tapes or pins.

This bandage is employed more or less in all cases of dyspepsia, liver complaints, constipation, paralysis of the lower limbs, affection of the pancreas, spleen, kidneys, and bladder, obstructions of the mesenteric glands, all forms of mismenstruation and female weakness, in a word, in all chronic morbid conditions of the abdominal and pelvic viscera, and in all states of weakness or relaxation in their ligaments or muscles. Persons who have weakened the abdominal muscles and viscera by sedentary habits and crooked bodily positions, experience great benefit from its use.

Friction.—Hand-rubbing, towel-rubbing, rubbing the skin over the wet or dry sheet, and with a flesh-brush or horse-hair gloves, are among the accompaniments of the bathing processes. Their object is to assist reaction and promote capillary circulation. As a general rule, patients should practice as much self-rubbing as convenient, at the same time that they are assisted by the attendant, because the exercise of so doing is an advantage of itself. As a general rule, too, the amount of friction in each case should be proportioned to the bloodlessness and torpor of the skin; and another general rule may be stated in relation to friction, which is, that it should be active and rapid, rather than harsh or scraping; rather magnetic than forcible. Some invalids, on the mistaken notion that the harder they are rubbed the more will they become vitally magnetized, keep the attendants at work, if they be good-natured, and object not, until completely exhausted; hence

the physician should always instruct the attendants well in this particular duty.

Temperature of Baths.—Hot, warm, tepid, cool, and cold are only employed as approximate terms. Water that feels hot to one may be only warm to another, and what is cold to one is sometimes tepid to another. The sensations of the patient are generally a better guide for regulating the temperature of a given bath than is the thermometer; still, the latter is indispensable in many cases, and in all convenient. As a general rule, the more feeble and delicate the patient, the more strictly should we follow the test of his feelings in administering tepid, warm, cool, or cold baths. When the circulation is vigorous, and the vital temperament well developed, we may regulate any bath with sufficient precision by the thermometer. It is a useful precaution, when commencing treatment with very susceptible patients, to test their sensibility to different temperatures of water, after which the physician or patient can prescribe them thermometrically. Some Water-Cure books seem to make it an especial point to be thermometrically exact in directing particular baths for given diseases, as for example: sitz-bath, at 59°, shallow-bath, at 63°, half-bath, at 74°, etc. These nice distinctions are not to be arbitrarily imitated, but may be regarded as landmarks, to keep us within reasonable bounds.

Baths may be distinguished into cold, below 65° Fahr.; tepid, 65° to 80°; warm, 80° to 98°; and hot, above 98°. But a better division may be made thus:

Very cold,	32° to 40°.	Tepid,	72° to 85°.
Cold,	40° to 55°.	Warm,	85° to 98°.
Cool,	55° to 65°.	Hot,	98° to 115°.
Temperate,	65° to 72°.	Vapor,	98° to 125°.

The term *moderately* tepid, warm, cool, or cold, when occurring in this work, means some degree between the bath named and temperate, or the next bath in the scale, reckoning toward temperate; thus moderately hot would mean a temperature between 98° and 85°, etc.

Duration of Baths.—There is the same mystical yet unmeaning exactness about the time of continuing a given bath, to fulfill a particular indication, in many Water-Cure books, that there is about the temperature. But here, again, we have better guides than seconds and minutes, in the feelings of the patients and in the effects produced. It

is true an experienced hydropath can, on examining a patient, determine at once about the proper length of time to administer most of his baths; but this time should always have a nearer relation to the condition of the patient, and the sum total of all the treatment prescribed, than to the name of the disease. A general rule may be laid down, that all patients should limit all baths to a period short of producing any very depressing chill; and never continue any one to the point of producing a second chill after the reaction has once taken place in the bath. In home-treatment the safer way is to incline to frequent and short baths, rather than few and long.

General Rules for Hydropathic Bathing.—1. No bath should be taken on a full stomach. General baths, as the wet-sheet, plunge, douche, shower, etc., should not be taken until the process of digestion is nearly or quite completed—from three to four hours after a full meal. Local baths, as the hip, foot, hand, leg, etc., may be taken in an hour after a light, and two hours after a hearty meal Bandages may be applied at any time.

2. Patients should not eat immediately after a bath. An hour is soon enough after a full, and half an hour after a local bath.

3. All patients who are able should exercise moderately previous to a bath, unless at the bath time the body is already in a warm glow; and after a bath, according to muscular strength. The more exercise short of absolute fatigue the better. By absolute fatigue I mean that degree of exhaustion which is not readily recovered from on resting.

4. In very warm weather the most active exercise should be taken before breakfast; and during the heat of the day it should not be crowded beyond what is perfectly agreeable.

5. No strong shock should ever be made upon the head. A shower or pail-douche, poured but not dashed on, is not objectionable for those who enjoy a tolerably well-balanced circulation, and are not subject to nervous headache.

6. Profuse perspiration, or great heat of the body, is no objection to any form of cold bath, provided the body is not in a state of exhaustion from over-exertion, nor the breathing disturbed. This point is generally misunderstood by physicians, and medical books of the old school are wholly in error about it. The majority of people imagine that the sudden transition from cold to hot is dangerous. The danger is all on the other side—in applying cold when the body is already too cold. Again, it is thought that a cold bath, when the body is dripping with sweat, will *check the perspiration*, and do immense mischief by driving it in! This is a mere phantasy. The matter of perspiration is a

viscid, waste, dead, effete material, and its presence on the surface has nothing whatever to do with the effect of a cold bath. It may be as safely washed off with cold water when the body is hot, as can any other extraneous matter adherent to the surface.

But persons *are* often injured by going into cold water when the body is hot and perspirable. Granted. I have known several young men made cripples for life by this practice. Now what is the explanation? Either the body was too cold, or in a state of exhaustion, or the respiration was materially disturbed, or the stomach was loaded, or all of these conditions existed together. There is a reciprocal relation between circulation and respiration, which cannot be greatly disturbed without injury. If a person jumps into cold water when out of breath from violent exercise, he endangers his health, because the intimate sympathy between the action of the heart and lungs will prevent reaction to the surface, and the result is internal congestion. Under all other circumstances, a warm or hot skin is favorable to any cold application, while the state of perspiration is a matter of no sort of consequence one way or the other. Dr. Johnson remarks: "Being in a state of perspiration is no objection to taking any bath, except the sitz, foot, and head-bath." If the rules I have laid down are duly observed, there can be no force in the objection of Dr. Johnson.

7. When full treatment is prescribed, as three, four, or five baths a day, the patient should take the most powerful, or those which produce the greatest shock, on rising, and in the early part of the day.

8. Wetting the head, and even the chest, is a useful precaution before taking any full bath, and especially important for patients who are liable to head affections.

Water-Drinking.—The indiscriminate drinking of large quantities of water, as has been the custom at some establishments, is not to be commended. The amount that can be taken to advantage varies greatly according to disease, temperament, exercise, diet, etc. Persons of large chest and abdomen, of florid complexion and active capillary circulation, can drink with satisfaction, and require, while under treatment, a free use of water as drink—from twelve to twenty tumblers. On the contrary, those of thin, spare body, nervous temperament, and especially if the skin appears bilious, and the pores, as it were, glued together, cannot take, with profit, more than three to six tumblers daily. In the former case the water is rapidly absorbed from the stomach, and thrown off by the skin; in the latter case it lies, as it were, like a dead weight in the first passages, and is finally carried off mainly by the kidneys.

Considerable allowance must also be made for the amount of exercise the patient can take, and the kind of food partaken of. The greater the amount of exercise, the more cutaneous transpiration, and the more water required. Those who use much animal food, salt, or other seasonings, grease of any kind, or concentrated farinaceous food, require a much larger quantity of water—other circumstances being equal, than those who restrict themselves to a plain vegetable diet. Patients should always drink to the extent of thirst; but for a general rule while under treatment, water should be taken most freely early in the morning, after the bath, and again about the middle of the forenoon; a less quantity still in the afternoon, and little or none in the evening. Very little should be drank at meals.

There are some few dyspeptics whose stomachs are so contracted and sensitive, whose livers are so torpid, and whose capillary circulation so diminished, that even a single tumbler of cold water produces a painful heaviness and distressing chilliness of the stomach. Such invalids should begin with half a tumbler, or even less, and gradually but carefully increase the quantity, as it can be borne without producing unpleasant sensations. In such cases, too, the water drank should never be very cold; the best temperature is from 55° to 65°.

Drs. Gully, Johnson, Wilson, and Rausse, very severely and very justly repudiate the indiscriminate practice of large water-drinking, which is so highly and extravagantly recommended in some works on Water-Cure. I have seen not a little mischief result from it; in home practice water-drinking is particularly liable to be overdone. Some persons have boasted of the "ravenous appetite" produced by drinking twenty or thirty tumblers of water a day; but I cannot understand the advantage of ravenous appetites; they are generally indicative of excessive morbid irritation in the stomach.

The rule for those who have not an intelligent hydropath to advise with, is to follow the sensations of the stomach; take all that produces pleasurable sensations, and no more. More or less water should always be taken after each bath. Exercise should succeed water-drinking, and, as already intimated, it should be proportioned to the amount of water taken.

Lavements and Injections.—These are used as cleansing and relaxing, or tonic and contracting processes. For the former purposes tepid or warm water is employed, and for the latter cool or cold. On the first attack of acute diseases of the bowels, cholera, dysentery, colic, diarrhea, etc., copious tepid injections should be promptly resorted to, and succeeded, after the alimentary canal is well cleansed, by

cool injections. In obstinate constipation from debility, cold injections should be employed daily until general treatment and diet can reproduce the ordinary peristaltic action. In hemorrhoids an injection of a small quantity of cold water just previous to the expected movement of the bowels, greatly assists the healing process. Chronic diarrhea generally requires cool or cold injections occasionally. In all chronic mucous or muco-purulent discharges from the bowels, bladder, urethra, or vagina, injections of a temperature suited to the susceptibility of the part affected, or the degree of inflammation, are an indispensable part of the treatment. In gleet, leucorrhea, prolapsus, and menorrhagia, they should be freely used as strengthening processes. After parturition the vagina should be cleansed with a cool injection. The most convenient instrument for self-treatment is the pump syringe for the bowels. The curved tube vaginal syringe is indispensable for females. In some affections of the uterus and vagina, a small tube speculum is necessary to be introduced to enable the water to come in contact with as large a surface as possible while employing the sitz-bath. The Union India Rubber Company, of this city (office 19 Nassau Street), has just brought out an admirable apparatus for throwing water up the rectum or vagina with any degree of force required. It consists of a bag, holding a gallon or more, which is filled with water and elevated, by hanging on a hook or nail, six, eight, or ten feet. The force of the stream is regulated by pressure on a long tube which conveys the water from the bag or fountain; and to the end of this tube suitable pipes are adjusted to convey the water up the vaginal or intestinal passage. This apparatus is cheap and not liable to get out of order.

CHAPTER III.

CRISES.

Doctrine of Crisis.—The doctrine of crisis is as ancient as Hippocrates. Acute diseases, when left to themselves, often terminate by some spontaneous evacuation; and chronic diseases, when left to the unaided remedial powers of nature, are frequently resolved by some external eruption or internal abscess. Under water-treatment, acute diseases are generally relieved by mild yet effectual functional efforts of all the excretory organs, unattended with any great commotion in

the organism, or strong determination to any one emunctory, or sinking of the vital powers, which can be called in any sense critical.

But with chronic diseases the case is often very different. Many cases, indeed, recover without any disturbance which can properly be denominated a crisis; others recover after repeated disturbances, more or less severe, which may be called critical efforts; and others, after one or several paroxysms of general or local excitement, attended with some profuse evacuation, severe boils or eruptions, a general feverishness, or an aggravation of old, half-forgotten aches, pains, or other local affections.

Forms of Crises.—The most common forms in which crises, or critical efforts, present themselves are, *diarrhea*, *boils*, and *general feverishness*. Boils present all manner of appearances from the hard, diffused, inflammatory swelling, with scarcely any suppurating point, to the deep, fully-matured, sub-cutaneous abscess; there may be one or several at the same time, or they may succeed each other for weeks or months, and be very painful, or scarcely troublesome. Those of full habit, sanguine temperament, and active external circulation, are most subject to boils and eruptions.

Diarrheas, when purely critical, come on without any accidental or unusual exposure or dietetic error, and continue with greater or less severity from three days to two weeks. There is not usually much pain, griping, or distress of any kind in the bowels, but the evacuations are thin, watery, and frequent; generally there are from three to six or eight motions in twenty hours. In persons who have been most subject to piles, the motions will be most frequent, and attended with considerable *bearing down* or *dragging* sensation about the lower bowel, and the discharges will exhibit a great amount of mucous or slimy matter, often intermixed with blood. A critical looseness of the bowels is not attended with debility like an ordinary diarrhea; if long continued, there is, of course, some degree of languor, but then the discharges are very easily checked by hot sitz-baths and cold injections. Those who have long labored under derangements of the digestive organs, and particularly those with torpid livers and constipated bowels; more especially, if these conditions are complicated with pale, yellow, bloodless skin, and shriveled, superficial, capillary vessels, are most liable to critical evacuations by the bowels; and, as far as my observation extends, they are invariably beneficial, always being succeeded by a decided sense of improvement in the patient's entire physiological condition.

The term "feverishness," does not very well express the other com-

mon form of critical action, but I know of no better one to employ. It is characterized by more or less of the symptoms which attend an attack of simple fever, but they appear in a more disguised and irregular form. There is chilliness and heat, languor, depression, backache, headache, general restlessness, great sensitiveness to cold, etc., etc., but, unlike the same symptoms in a paroxysm of simple fever, they do not follow each other in the order of the *cold*, *hot*, and *sweating* stages. This febrile disturbance continues from one day to a week, when, unless aggravated by improper treatment, the body recovers its balance of action and feeling, and the patient feels himself advanced at least one step on the road to health. Other manifestations of critical disturbance, as eruptions, rashes, profuse sweatings, copious discharge of urine, vomitings, free evacuation of bile, etc., stiffness of the muscles, pain and swelling of gouty and rheumatic joints, fetid perspirations, where compresses are worn, etc., occasionally occur, but require no especial management save moderating or suspending a part or all of the cold treatment, as the general disturbance of the system is more or less violent, and employing soothing applications, as indicated.

Management of Crises.—The management of crises is not difficult; generally all that is required is an omission of some part or all of the stronger baths, according to the violence of the crisis, and the use of such mild and soothing appliances as are most agreeable to the patient. The patient should exercise or rest, as he finds either most comfortable, diet very simply, and use water locally to boils, eruptive or inflamed parts—of the temperature that feels most pleasant. If there is violent headache, it may be soothed with the hot abdominal fomentations. If the whole body is sore, tender, restless, and irritable, a hot bath should be taken for ten minutes; and if diarrhea progresses so far as to materially weaken the patient, the hot fomentation, or hot sitz-bath, with cold injections, should be employed. Full treatment should not be resumed until the critical disturbance is entirely abated.

Rationale of Crisis.—I do not know that it is possible to explain satisfactorily to the professional or non-professional reader the true rationale of critical action, since all the language employed in relation to vital laws, organic instincts, remedial actions, etc., is necessarily more or less figurative. Authors on Water-Cure all agree that crises do occur; some regard them as of general occurrence, the cures without such phenomena being exceptions to a general rule; others contend that cures can generally be made without crises, these being the ex-

ceptions; and still others regard the majority of the crises as the result of injudicious or excessive treatment.

It is perfectly certain that many bad cases of chronic disease are cured without any appearance of crises whatever; it is equally certain, in my judgment, that some few cases are utterly incurable without tho production of a decided crisis; and I am fully convinced that in many cases crises are rendered unnecessarily and even dangerously severe by excessive or injudicious treatment—generally too cold or too shocking treatment. If a patient is kept continuously chilled, so that comfortable reaction does not take place between the baths, or the douche is applied so severely as to produce a state of unusual nervousness, the crises will be very apt to be injuriously violent. Hence the safer general plan of treatment, especially in home practice, is to take the slower yet surer way—do only what is clearly proper, and keep always on the safe side. In this way we only lose a little time, for which life or health should never be periled.

The diet has an important bearing on the severity of the crisis. In all cases, the more plain, simple, and strictly physiological is the food taken, the less severe and distressing will be the critical efforts; all gross, greasy, high-seasoned food, or complicated dishes render a severe treatment necessary to cure, and this necessarily involves a more violent crisis. It is a great error on the part of some physicians to allow a hotel table, and then depend on harsher water processes to effect the cure; the blame, however, is not all on the side of the physicians, for many patients prefer to "eat what their souls lust after," and take the harder treatment, greater suffering, and less perfect cure.

Doctor J. Weiss says (*Hand-Book of Hydropathy*): "This natural vital process is not to be regarded as morbid, for, with the existing disease, it has nothing in common. While a disease lasts, therefore, no crisis can ensue. The appearance of the crisis announces a return of the vessels in the diseased parts to their normal activity, the resumption of the proper functions assigned to them; or, in other words, the emancipation of the organism or its organs from disease. This is the sole signification of the crisis, according to experience and nature."

Doctor E. Johnson remarks: "That the system, by virtue of its own inherent energies, sometimes purges itself of morbid matters by a crisis; that is, by establishing some temporary outlet through which such morbid matters may and do escape, is perfectly certain. The Aleppo boil, small-pox, measles, and many other well-known diseases, prove this to demonstration, and beyond the possibility of question. In all these cases the crisis is clearly the means of cure. Without such or some similar crisis, the patient must die. Whether the water-treat-

ment has the power of urging nature to the establishment of such temporary outlets is another question, to which I can only reply, that I believe it has."

Doctor Gully remarks (*Water-Cure in Chronic Diseases*): "In the course of the efforts which nature makes, with the co-operation of the Water-Cure, it sometimes happens that the new distribution of blood which they bring about is so energetically affected as to cause morbid congestions of blood in other organs than the diseased viscera. In this manner congestion of the lower bowel takes place, and is exhibited in *diarrhea*; general congestion of the skin takes place, and is exhibited in *sweats* of various kinds; or partial but more intense congestions of the skin take place, and are exhibited in *eruptions* of various kinds, and in boils of various degrees. To these exhibitions of transferred irritation and circulation the name of *crisis* is given. * * * Critical action, then, as a result of the water-treatment, signifies that the viscera have been enabled to throw their irritation and blood upon some other organs, the lower bowels, or skin; and that this excess of blood, and this irritative action attempts relief by throwing out large fæcal secretion, or unusual cutaneous secretion. This is all that can be said of a crisis; it is an outward and visible sign of the exercise of a power on the part of the inward organs to save themselves by a transfer of mischief to parts less essential to life."

Doctor Shew observes (*Water-Cure Manual*): "A crisis may be said to be a visible effort on the part of nature or the natural powers of the system, to rid it of some morbid matter or matters in it, or expelling them at some of the natural outlets of the system, as the skin, bowels, and kidneys. These appearances occur in the form of boils, eruptions, sweatings, diarrhea, mucous and bloody discharges, high-colored urine, feverishness, and the like. * * * The true philosophy of these apparent aggravations of disease is probably this: As the living power, or that which we call nature, becomes invigorated, a greater antagonism against disease is set up; the disease then makes a more desperate effort to remain, and, in the commotion thus caused, there appears to be an increase of the same."

Doctor J. H. Rausse remarks (*Water-Cure in every Known Disease*): "The conditions of disease during the Water-Cure, and particularly during the critical periods are, throughout, different from every thing which has formerly been witnessed. It cannot be otherwise, because this cure stirs up, little by little, all latent and most deeply-hidden matters of disease, and eliminates them through boils, etc.; on the contrary, all former methods of cure suppress the commotion of the struggles of disease, and force the causes of disease inward. The es-

sential distinction between water and medicine is, that the former drives the peccant matter out of the body; the latter, however, drives it into the body. For this reason the mediciner seldom *perceives* that the causes of diseases are material; the water-doctor, however, makes this sensual perception in every disease. Hence arise the various views of the corporality and spirituality of disease."

Essentially all the authors above quoted mean the same things, however fancifully or fantastically their ideas may be clothed in language. Remedial efforts are always going on in the organism when it is in any way morbidly affected; and when those efforts are disproportionately manifest at one or more points of the body, or through one or more of the depurating organs, this manifestation is called a crisis. Critical efforts attempt to perform a threefold duty: eliminate morbid matters, balance the circulation of blood, and equalize the distribution of nervous energy. This latter duty is too generally overlooked. Some authors write as though all the good effected by a crisis, a boil, for example, was the riddance of a specific quantity of morbid material; but this is a very narrow view of the subject: that is indeed one, but the least of the remedial effects accomplished. The amount of morbid matter deterged from an extraordinary boil in a week would not equal the ordinary daily elimination of morbid matter from the skin or kidneys. The greatest effect, therefore, is the restoration of more efficient vital action, the better radiation of vital power from the presiding centers of organic life.

All morbid actions are evidences of the remedial efforts of nature to overcome morbid conditions or expel morbid materials. All that any truly philosophical system of medication can do, or should attempt to do, is to place the organism under the best possible circumstances for the favorable operation of those efforts. We may thwart, embarrass, interrupt, or suppress them, as is usually the case with allopathic practice, or we may direct, modify, intensify, and accelerate them, as is the legitimate province of hydropathic practice. But we must confess to the parodoxical proposition, that *the symptoms of disease are the evidences of restorative effort*; the effort, however, may be unequal to the end in view, and hence the powers of nature are to be assisted by removing obstacles, diverting irritation, etc.

To place this subject in a stronger, and perhaps clearer light, let us imagine that before our eyes stands an invalid, laboring under a complication of common infirmities, having also "suffered many things of many physicians," and that by some clairvoyant or other kind of vision, we can see through him. What do we discover? The whole mass of blood is thick, dark, viscid, and loaded with bilious particles; the

liver is indurated and torpid, and secretes but little bile, and that little remains so long in the biliary passages that it becomes partially decomposed, and, to some extent, putrescent and acrid: and where it enters the duodenum, it corrodes its mucous surface; the stomach has been so long plied with luxurious living, that its vessels are red, inflamed, and its secretion of gastric juice almost entirely suspended; the colon or large bowel is clogged up with hardened fœcal matters, and the rectum or lower bowel is full of hemorrhoidal tumors; the mucous membrane of the throat and mouth is covered with an erythematic eruption, and the nerves of the tongue and palate are semi-paralytic; the skin is livid, rough, and eruptive, its capillary vessels over-distended with thick blood, and its pores clogged up with dead, effete matters; from the deficient external capillary circulation the internal vessels are overloaded and engorged; the heart labors, throbs, and flutters; the lungs are so oppressed they cannot expand freely, and the system is not sufficiently decarbonized; the kidneys are distended, swelled, and their secretion imperfect, high-colored, and full of sediment; and last, though not least, the brain is constantly pressed upon by the current of venous blood which is there dammed up, as it were, by the general obstructions, producing vertigo, headache, and a thousand indescribable morbid sensations, etc., etc.

Such is not an overdrawn picture of a large proportion of Water-Cure invalids. Now, what happens under treatment? The first effect of the water processes is to relieve the more prominent, yet more external, and less important of the symptoms, as morbid heat, inflammatory action, pain, irritability, symptomatic fever, restlessness, sense of general oppression, etc.; this is usually accomplished within four weeks, and the patient feels a newness of life; his spirits become buoyant, his step more elastic, and he experiences a sort of general bodily exhilaration; but, like the marred and scarred sapling, which has been bent to the ground, and rises up again when the superincumbent pressure is removed, he has wounds and bruises to heal. During the treatment, changes have been going on in all the machinery of vitality; obstructions have been more or less cleared away; torpid muscles aroused to action; long-smothered sensibilities stirred up in half-palsied nerves; the excitability of the contractile tissues re-developed; universal commotion has pervaded the domain of organic life.

In this state of general perturbation, when some parts and organs are surcharged with blood, and others bloodless—some inflamed, and others torpid—some excessively irritable, and others almost paralytic—some preternaturally sensitive, and others almost devoid of sensation—some oppressed with heat, and others depressed by cold—with impure

secretions in many organs, and excrementitious matters choking up the capillary vessels more or less in the different structures, it may well be supposed that the *vis medicatrix naturæ* would present many phases of irregular and disorderly action; sometimes concentrating the whole remedial effort in one direction or to one outlet; sometimes dividing it between several parts, and sometimes making it, with more or less force, successively in various directions.

These efforts are attended with waste or expenditure of organic force, and sometimes this expenditure for a time exceeds the replenishment; hence "reaction," as it is called, fails, and the patient feels a temporary depression, in which condition he is very apt to imagine the treatment "does not agree with his constitution." Now it is that the faith and skill of the patient and physician are put to the severest test. If the patient now takes his feelings for his guide, and abandons all treatment, he may commit a fatal error for himself, and give the whole water-system a bad name; and if the physician perseveres in the use of very strong impressions or very cold treatment, this temporary depression may become permanent, or, at least, unnecessarily painful and protracted. All the patient requires is rest, soothing appliances, and encouragement. If he feels very weak, let him follow his feelings in the matter of exercise; walk, sit, or keep his bed precisely as he can best enjoy or endure himself. If he is feverish, chilly, or in pain, administer local fomentations, or the warm or hot bath. In brief, he needs an expectant, nursing management until the organic powers have thoroughly *rested* themselves, and in three, six, or ten days, more or less, full treatment may be resumed to advantage.

But where disease and disorganization have pervaded a large extent of the domain of life, these efforts, and these sinkings, these general or partial crises, these "ups and downs" may be many before health is re-established; and the physician who undertakes specifically to *provoke a crisis*, with the view of curing, as it were, at a single dash, commits a grave mistake. Crises, or any number of critical efforts or disturbances, are always to be desired, but never to be sought by violence.

It often happens that patients whose bodies are extensively diseased, yet not very much exhausted in muscular power, experience very great benefit at a Water-Cure during the first month, after which they suffer a slight aggravation of many of their difficulties, and thus remain several months apparently in *statu quo*, not realizing within themselves, or manifesting externally, any decisive indications of restoration, and yet in a few months longer find themselves in good health. Such cases, of which I have seen many, prove to us that the process of repara-

tion, in the domain of the organic economy, like that of growth and development, is slow, silent, gradual, and almost imperceptible, and that, although we may rid the system of obstructions, morbid deposits, and active disease by the diligent employment of the Water-Cure processes, the re-establishment of firm and vigorous health requires weeks, months, or years, and is influenced favorably or adversely by every circumstance and habit of life.

CHAPTER IV.

OF THE PULSE.

NATURE OF THE PULSE.—All persons who undertake the general direction of hydropathic appliances, ought to be familiar with the character and indications of the arterial pulsation. There is no surer test of the degree of existing vitality, or of the balance of circulation, and no better guide for the administration of water-treatment; while its variations denote, with considerable accuracy, many pathological conditions of the different organs and systems of the vital domain. For these reasons, this chapter may properly form a connecting link between the theoretical and practical departments of this work.

The beating of the arteries, caused by the afflux of blood propelled through them by the contractions of the heart, is called the pulse. Its characters relate to the force, frequency, strength, and equality of the pulsations themselves, and of their intervals. The most convenient method of ascertaining the state of the pulse is by compressing the radial artery at the wrist, with the balls of the first and second fingers; the main force is to be applied by the finger which presses on the artery *above*, or toward the heart. Its *strength* is determined by the degree of compression it will bear before it will cease to be felt by the finger *farthest* from the heart.

VARIETIES OF PULSE.—Medical authors enumerate many kinds of pulse, which are both fanciful and ridiculous. All the distinctions which are of practical utility are the following:

The pulse is called *regular* when its beats are uniform in force, frequency, fullness, etc., and *irregular* when it lacks uniformity in these respects.

A *normally strong* pulse resists moderate, yet yields readily to severe pressure.

A *preternaturally strong* pulse is almost incompressible. A strong pulse is never very frequent, rarely exceeding 80, and never, perhaps, 90.

A *hard* pulse offers nearly as great resistance at first as a strong pulse, but yields more easily and completely to strong pressure.

A *soft* pulse feels full and round to the finger, but yields steadily and readily to pressure.

A *full* pulse gives to the finger the sensation of repletion or fullness.

A *contracted* pulse is nearly the opposite of the full pulse, the pulsations being narrow, deep, and somewhat hard.

A *frequent* pulse has an unusual number of strokes in a given time. The natural frequency of the pulse at the various stages of life is subject to considerable diversity. The average may be stated as follows: In the embryo, 150; at birth, 130; one month, 120; one year, 112; two years, 105; three years, 100; seven years, 90; twelve years, 85; puberty, 80; adult age, 70; old age, 65.

A *slow* pulse makes less than the usual number of strokes in a given time.

A *quick* pulse is one which strikes sharply and suddenly, as it were, against the finger without reference to the number of pulsations; hence it may be quick and frequent, or quick and slow. A quick pulse is never very frequent, seldom over 90.

The pulse is said to be *tense* when the artery resembles a cord fixed at each extremity; when it feels still harder and smaller, it is called *wiry*.

A *deep* pulse is that which cannot be felt without difficulty nor without strong pressure.

A *tremulous* pulse is one wherein each pulsation oscillates.

A *weak* or *feeble* pulse beats lightly against the finger, ceasing entirely on very slight compression.

A *small* pulse unites the character of the weak or feeble with the contracted pulse.

A *sharp* pulse is a combination of the quick and frequent; the artery strikes the finger both abruptly and rapidly.

The *pulse* is called *critical* when it becomes free, open, soft, etc., after having been irregular or abnormal in these respects.

The *dicrotic* or *double* pulse is that in which the finger is struck twice at each contraction of the heart: once lightly and once more forcibly.

An *intermittent* pulse is that in which a beat is occasionally missed

as it were; the intermissions are usually quite irregular, as one in five, six, ten, or twenty.

There are many technical distinctions of pulse, which are either unimportant, or merely subdivisions of those already named, as, *ardent*, when the artery seems to raise itself to a point in order to strike the finger; *goat-leap*, an imperfect dilatation of the artery, being succeeded by a fuller and stronger one—the artery seems to leap, as it were; *convulsive*, unequally frequent, or unequally hard; *deficient*, a feeble beat, which seems every instant about to cease; *depressed*, a pulse both weak and contracted, or deep; *filiform*, resembling a thread, slightly vibrating; *flickering*, *i. e.*, deficient; *hectic*, the weak, feeble pulse observed in hectic fever; *intercussent*, one in which a superfluous pulsation seems to occur occasionally; *intricate*, unequally slow and imperfectly developed; *jarring*, jerking and sharp; *languid*, slow and feeble; *large*, an open and full beat; *long*, one which strikes the finger to a great extent in length; *low*, the pulsations scarcely perceptible; *resisting*, slightly tense or hard; *undulating*, the pulsations resembling the motion of waves; *unequal*, the pulsations being unlike, or returning at unequal intervals; *vermicular*, resembling the motions of a worm; *vibrating*, jarring, like the motions of a musical string; *oppressed*, small, contracted, and slow; *laboring*, the blood seeming to be but partially emptied at each pulsation, etc.

Indications of the Pulse.—The *preternaturally strong pulse* is characteristic of high fevers and active inflammations. It is the kind of pulse which is said to *bear* bleeding well; bleeding does not immediately nor sensibly prostrate the patient; but often relieves pain and lessens sensibility. When this pulse exists, no matter by what name the disease is called, the cold ablution or wet sheet may be freely employed and safely continued until the pulse is reduced to the natural standard.

The *hard pulse* indicates a less degree of inflammatory action, or a great degree of irritation, without great debility. It is found in many forms of acute and sub-acute inflammation, as gout, rheumatism, pneumonia; in that form of continued fever called synochus; in many cases of what is called bilious remittent fever, in the early stages of intermittent fever, during the hot stage of the paroxysm, and generally in the early stages of the exanthems—measles, small-pox, scarlatina, erysipelas, etc. Bleeding renders it softer for a few hours, but, unless the cause is removed by some other means, the hardness soon returns. Cold applications may be employed under the same restrictions as for the strong pulse.

The *soft pulse* is always found in the normal state of the circulation, and sometimes attends diseases which are not marked by active inflammation, nor much debility. Bleeding always sinks this to a weak, contracted pulse. In water-treatment mild applications are most beneficial.

The *full pulse* indicates a good degree of superficial capillary circulation. Bleeding always permanently depresses this kind of pulse; but cold applications are generally very well borne. It is generally found in apoplexy, the hot stage of fevers, the incipient stage of pulmonary consumption, etc.

The *contracted pulse* indicates capillary obstruction and intense engorgement. Epidemic cholera affords an extreme example of this kind of pulse. It often "rises" on bleeding, to sink more deeply soon after.

The *frequent pulse* indicates irritation or inflammation, and when *very frequent* great debility. Irritable temperaments manifest a more frequent pulse than the phlegmatic; and females have a more rapid pulsation than males. A frequent pulse may be strong up to about 90 per minute; but beyond that point debility is generally proportioned to the frequency. In complicated affections of the thoracic and abdominal viscera, the frequency of the pulse is an important indication of the locality of the principal morbid condition. Thus, in dyspeptic consumption—an affection which commences with a diseased liver and stomach, and ends with tubercles or ulcers in the lungs—the pulse will be moderately slow while the abdomen is the principal seat of disease; it will gradually increase in frequency, as the disease extends itself to and occupies the lungs; and be very frequent when the viscera of the chest have become the point most dangerously affected. Nothing is more common than for experienced physicians to make the most egregious mistakes in diagnosticating between diseases of the liver and lungs, or between dyspepsia and consumption; but the frequency of the pulse, aided by other symptoms, ought always to insure a correct diagnosis. The importance of this symptom is enhanced by the fact, that in most chronic diseases of the abdominal organs, the pulse is preternaturally slow; while in all idiopathic affections of the chest it is more or less preternaturally frequent. In those dyspeptic affections or disorders of the liver, attended with a dry, husky cough, a tenacious secretion of the throat, or a glutinous mucous expectoration from the lungs, there is always danger of confirmed consumption when the pulse begins to beat with considerable frequency, say from 80 to 100.

The *slow pulse* indicates torpor, inaction, especially in the functions

auxiliary to digestion. Compression of the brain, from contusion, or effusion, or engorgement, not unfrequently produces a very slow pulse. Dyspeptics and hypochondriacs often manifest an extremely slow pulse. In all of the above cases the pulse frequently sinks to 50, and occasionally to 40. A change in dietetic habits, if it be from highly-seasoned, stimulating, or animal foods, to plain, simple, vegetable dishes, is always accompanied with a reduction in the frequency of the pulse. The long and slender arteries of tall and slim individuals beat less frequently than the shorter, thicker vessels of an opposite organization.

The *quick pulse* is similar in its indications to the hard pulse; but usually denotes a greater degree of irritation or inflammation.

The *tense pulse* denotes excessive irritation with considerable debility. It is usually found in constitutions which possess great activity with little strength.

The *deep pulse* is merely owing to the situation of the artery, which runs deeper beneath the integument than usual.

The *tremulous pulse* indicates extreme nervous debility with violent irritation, or excessive internal congestion. Tea, snuff, alcoholic beverages, and cigars are among its common causes.

The *weak* or *feeble pulse* indicates debility merely.

The *small pulse* denotes debility with more or less local irritation.

The *sharp pulse* indicates more or less debility with great irritation.

The *critical pulse* denotes the subsidence of irritation; a more perfect equilibrium in the circulation, and a general improvement in the patient's condition.

The *double pulse* usually attends organic affections of the heart or large arteries; yet it is sometimes found in very nervous dyspeptics, especially those who have indulged freely in nervines and narcotics, as coffee and tobacco.

The *intermittent pulse* is extremely common with dyspeptics, nervous invalids, sedentary persons, and those who are subject to constipation, and also with old persons. It not unfrequently occasions great alarm, being erroneously supposed to indicate aneurism, heart disease, or some other formidable and fatal malady. It indicates thick, viscid blood, capillary obstruction, or nervous exhaustion. Overloading a weak stomach, almost always produces an intermittent pulse for a time, as do night suppers, and going to bed soon after eating.

The sub-varieties of pulse indicate complications of the conditions which give rise to the more distinct varieties, and are attributable to constitutional peculiarities, personal habits, local irritations, and many other circumstances relative to the individual, the disease, and the treatment.

PART V.

PATHOLOGY AND THERAPEUTICS.

CHAPTER I.

OF FEVERS.

CLASSIFICATION OF FEVERS.—The nosological arrangements of fevers, as found in medical books, are all, in my judgment, unphilosophical and absurd. Without wasting any of my limited space in exposing their errors, I will at once propose a classification which shall, at least, make a nearer approximation to pathological propriety.

Nosological Arrangement of the Simple Fevers.

Contin. Fevers.

1. *Ephemeral.*—One day Fever,
2. *Inflammatory.*—Synochus—General Inflammation,
3. *Typhoid.* { Yellow Fever, Nervous Fever, Putrid Fever. } { Ship Fever, Spotted Fever, Camp Fever, Jail Fever, Hospital Fever. }
4. *Remittent.* { Nervous Remittent, Putrid Remittent. } Marsh Fever.
5. *Intermittent.* { Quotidian—Everyday Ague, Tertian—Third day Ague, Quartan—Fourth day Ague. }
6. *Symptomatic.* { Hectic Fever, Puerperal Fever, Mesenteric Fever, Milk Fever. }
7. *Eruptive.* { Small-pox, Chicken-pox, Cow-pox, Measles, Scarlatina, Erysipelas. Miliaria, Plague }

From this arrangement I have excluded the "bilious fever" and the "synochus," or "mixed fever" of authors. A mild form of the putrid typhus, when accompanied with bile in the stomach, and a yellowish conjunctiva, is often called bilious fever; so, also, is either form of remittent. The "synochus" is said by some authors to be bilious in the beginning, and typhus in the end. This is simply absurd. Other authors denominate it inflammatory at the outset, tending to a typhoid termination. This is mistaking an aggravation of symptoms for a change of type. Bystanders are often astounded at the bedside of the patient by hearing the physician announce that the fever has changed type, from bilious or inflammatory, to typhus or typhoid. All this I regard as sheer nonsense. All that it can mean in plain English is, the patient is worse, or has approached the critical period or turn of the fever.

The "congestive fever," as it is generally called in our Southern and Western states, is merely a severe form of intermittent or remittent, attended with the symptoms of a disproportionate engorgement of the brain or lungs. Sometimes a malignant form of typhus is called congestive fever, and occasionally almost all forms of fever, accompanied with severe congestion of some important viscus, are designated by this unmeaning term. European authors have entitled similar cases "pernicious fevers," by way of distinction: a more uncouth and senseless appellation than congestive.

Doctor William Jenner, professor of pathology in University College (*Braithwaite's Retrospect, Part XXIII.*), has lately classified continued fevers into *typhoid*, *typhus*, *relapsing* and *fabricula*. This "relapsing fever," we are told, is known by a reproduction of most of the febrile symptoms in about a week after the patient has become convalescent. He is then, without any apparent exciting cause, without any error or indiscretion on his part, reattacked with violent fever, which lasts several days, and then terminates in profuse perspiration. A more appropriate name for this febrile disturbance is *drug-fever*. It is perfectly clear to my mind that, after the patient's body has been saturated, as it were, with drugs, as in the ordinary treatment of a fever, the vital powers will endeavor to get rid of the drug-medicines as soon as they have recovered sufficient energy to make the effort; and this effort is what Dr. Jenner distinguishes as a distinct species of fever, which he calls "relapsing," and treats with another course of drugging.

This explanation is confirmed, if not demonstrated, by the fact that the patients whose fevers are treated hydropathically, *never* have a relapsing repetition of the fever, nor any thing like it.

General Character of Fever.—A fever is a simultaneous abnormal disturbance of most or all of the bodily functions, such disturbance being manifested in periodical paroxysms, more or less severe and prominent, of cold, hot, and sweating stages.

It commences with languor, lassitude, and general disquiet, followed by shivering, rigors, or chills, then succeeded by hot flashes over the surface, with aching sensations in various parts of the body, particularly about the small of the back. Finally a preternatural heat, redness, and turgescence pervades the whole body, accompanied with headache, furred tongue, frequent pulse, deficient secretions, and prostration of strength. Sooner or later the superficial heat and redness partially or totally subside, and the paroxysm is terminated with more or less general or local sweating. Either stage of the paroxysm may be disproportionately severe, and either may be so slight as to escape notice.

Causes of Fever.—It would be a profitless waste of words to enumerate specifically all the circumstances which are supposed to be among the predisposing and exciting causes of fever. In a general sense they may be summed up very briefly: local contagions or poisons, unhealthful food, impure water, vitiated air, personal uncleanliness, over-exertion, atmospheric vicissitudes, gluttony, intemperance, etc.

Medical books are full of amusing specimens of thoughtless statements on this prolific subject. Thus Hooper, in his "Physician's Vade-Mecum, with Improvements by Guy and Stewart," gives us the predisposing causes of inflammatory fever in the following words: 'Plethoric habit of body, with a *strong muscular system; a good and unimpaired constitution!*" If muscular strength and a good constitution predispose us to disease, it is certainly very dangerous to have good health! The same author gives us, as among the predisposing causes of yellow fever, "the male sex," and among those of miliary fever, "the female sex!" It is of such stuff that many medical books are made. I only marvel that some transcendent genius has not recorded *human nature* as a predisposing cause of disease!

Theory of Fever.—Since medicine became a system—it never was a science—theories of fever have, more than any other subject, displayed the genius of the great masters of the profession. The very names of all the different ones that have been written, would fill a volume; yet, at this day, we have in our medical schools no generally-recognized theory. All is now as vague, indefinite, and unsatisfactory

as in "the dark ages;" and the existing opinions of living authors regarding the nature of fever, are speculations of the most chimerical character.

Still, the whole subject seems simple enough. The reason why an explanation has never been found is, I apprehend, because it has never been sought in the right direction. A man who should look to the moon all his lifetime in search of the "philosopher's stone," might not discover it though lying at his feet. Medical philosophers, instead of rationally tracing the effects of riotous living and abused hygienic agencies, have expended oceans of midnight oil and centuries of brain labor in trying to *think out* some specific, strange, hidden, occult, mysterious, extra-natural thing, substance, element, or cause, whose existence should, in some magical manner, account for all the phenomena of fever. Of course, all their toil has been in vain. It has been rather worse than labor lost, for the writings and teachings of medical books and medical schools are so tinctured and mystified with the vagaries of medical professors, that the student of medicine is morally certain to get his mind more or less befogged, and his judgment to some extent warped by their influence.

Type of Fever.—A man of strong, vigorous constitution, accustomed to an active out-door life, yet regardless of healthful habits, eating and drinking what comes in his way, as is the fashion of the world, is exposed to unusual cold, wet, heat, labor, or some similar vicissitude. In a day or two he has a fever. Its type will be *inflammatory*, because his vital energies are strong and his viscera powerful, and in him nature—the organic instinct of self-preservation—is successful in throwing the morbid action to the surface. If the disturbing causes are slight, it will be ephemeral in duration; if more severe, typhoid.

Another man, of feeble constitution and sedentary life, is similarly exposed and similarly attacked. His fever will be *typhus*. There is less ability to react successfully, and the internal commotion is proportionally greater. The surface is less turgid, but the viscera suffer more internally. The brain manifests delirium, the lungs engorgement, the liver congestion, the stomach and bowels torpor or relaxation, and some physicians will call it *congestive fever*.

If either of the above patients has been gross in his eating habits; if pork, ham, sausages, cheese, and fine, constipating, farinaceous food have constituted a large proportion of his diet, he will have a yellow tongue, bitter taste in the mouth, bile in the stomach, etc. Then his fever may be called *bilious*.

The man of impaired constitution and weak digestive powers, who

is attacked with typhoid fever, will have the *nervous* form, if his brain and nervous system have been particularly abused, overworked, or stimulated by tea, coffee, liquor, or tobacco, and the *putrid* form if his personal and dietetic habits are gross, and particularly constipating and obstructing.

The *yellow* variety is produced by causes which especially operate to impair the secretion of the liver, as excessive heat, animal or vegetable miasms, combined with gross diet and stimulating drinks. Every kind of animal food, except, perhaps, milk, in very warm climates, I regard as a predisposing cause of yellow fever.

The other forms of typhus, called *ship*, *spotted*, *jail*, *camp*, and *hospital* fevers, are nothing more nor less than the common or typhoid fever, modified by local causes and particular personal habits.

Remittent fever may be of the nervous or putrid tendency, for the reasons already assigned. Its remittent character is owing undoubtedly to a disproportionate affection of the liver and spleen, a condition of obstruction and engorgement produced by noxious effluvia, or any impurities from decaying vegetable and animal matter, to which the system has been for a long time exposed.

Intermittent fever is the result of the same causes operating more gradually, that is, in less force, and for a longer time. The periodicity of the paroxysms must be referred in part to organic laws and in part to constitutional peculiarities. This view of remittent and intermittent fevers is confirmed by the fact that enlargements and indications of the large glandular structures, the liver, spleen, and pancreas, are most frequent in those who have been the subjects of protracted agues.

Symptomatic fevers are merely states of constitutional irritation from local causes, generally chronic topical inflammation. Thus *hectic* fever is a general febrile disturbance from tubercles or ulceration of the lungs. *Puerperal* fever is a consequence of inflammation of some one or more of the abdominal or pelvic viscera or appendages, generally peritoneal inflammation after childbirth. *Mesenteric* fever arises from worms, indigestible food, etc. *Milk* fever is occasioned by an inflammatory state of the female breast.

Eruptive fevers are characterized by an accompanying rash, efflorescence, eruption, or pustular affection of the skin. They are generally contagious, and depend on a specific virus, which works through the blood like a ferment. The precise *modus operandi* by which this infectious element is first produced cannot be precisely explained; yet the principle or law of its generation and operation is sufficiently obvious. Vegetable ferment, called yeast, it is known is produced from decomposition of vegetable matter. This is in reality a rotting process.

by which certain proximate principles are decomposed and so rearranged as to constitute an entirely new product. The new product, of course, holds an unphysiological scale of chemical affinities in relation to the constituents of the healthy fluids, and hence when brought into contact with those fluids, another set of chemical actions, decompositions, and recombinations takes place, by which some element is changed, modified, or destroyed.

We know, too, that when animal secretions or excretions are in a certain decomposing state, which is exactly analogous to vegetable fermentation, they will, by being brought into contact with the blood of a healthy person, produce more or less of a similar change or decomposition in its elements. Poisoning from dissection is a familiar illustration. Personal filthiness, combined with foul and unclean food, will develop an infectious matter and disease the structures, and by contact, communicate a similar morbid action to another in comparative health, as the horrible story of prostitution in cities can tell. We can then easily understand the law which develops infection of all kinds, if we cannot detect its chemical nature; and for all practical purposes, a knowledge of the law is sufficient.

All large collections of rotting or decaying vegetable and animal substances engender the poisonous ferment of contagious and other fevers; and if we look over the whole surface of the globe, we can easily find sources enough to account for all the infection, whose results are manifested in putrid, malignant, and contagious fevers, dysentery, cholera, etc. Thousands of human bodies, and the carcasses of beasts, lie rotting on the battle-fields of this blood-stained earth, from which currents of deadly virus are borne by the winds to infect the breath and blood of people at a distance of hundreds and thousands of miles; the graveyards and cesspools of all large cities are constantly sending forth streams of death in all directions; and hardly a country place can be found where there are not local sources of this deadly ferment in the shape of hog-pens, distilleries, slaughter-houses, etc. And when the infectious ferment is once produced, it has the power of propagating itself whenever it can find congenial elements in the fluids of our bodies, our only defense being vigorous functions and pure blood—good health.

Rationale of Fever.—The living organism is endowed with the inherent power of self-preservation. Each organ or part, to a certain extent, resists all morbific influences, and expels all morbific materials from the body through the various excretories. If the causes of disease—all of which may be summed up under the heads of impure or

obstructing materials, and exhausted nervous power—diminish the depurating power of the skin, the liver, bowels, kidneys, and lungs, increase their labors to keep the body pure. If the liver becomes clogged up, the lungs, skin, bowels, and kidneys undertake the office of the impaired organ. If the kidneys are impaired functionally, the skin, lungs, etc., have an augmented duty. But the causes of disease often operate and increase so gradually that all the excretory functions are impaired. Hence the effort to relieve the system must be general—universal commotion takes place. Some organs were originally stronger than others; some have been more injured than others by bad habits or previous diseases; hence the struggle will not be equally balanced. Though all the vital energies co-operate in the "effort of nature," they will act with irregular and unequal energy. The whole vital machinery is thrown into disorder. There is *a* fever. *The kind* of fever depends on the circumstances already adverted to.

But alternate action and repose is a general, universal law of the animal economy. After the organism has prepared itself for the remedial and expulsive effort (the cold stage), the vital instincts *(vis medicatrix naturæ)* direct their whole energies to the surface (the reactive or hot stage), as the best channel of purification. At length fatigue ensues, and repose must and will be had. The heat abates, the heart's action becomes milder, the turgescence subsides, and the collapse, or sweating stage, concludes the paroxysm.

If the morbific causes were slight in intensity, and the morbid material small in quantity, the single struggle may have sufficed to set the vital "house in order." Then the paroxysm will not be renewed. Otherwise it will be repeated again and again, until "victory or death" results.

If this view of fever is right, the drug-system of treatment must be wrong. Instead of "aiding and assisting nature," it tends to smother her efforts, and adds still other extraneous agents for the vital powers to contend against.

But it may be asked, by way of objection to the treatment I shall advocate: Why, then, if the paroxysm of fever is a remedial effort, do you disturb this effort with your cold, or tepid, or hot-water processes? Why cool the hot stage of a fever with cold bathing, and object to cooling it by cold bleeding and cold drugging? I answer: The organic instincts are true to nature; they are infallible in the matter of mere existence. But they are not intelligent; they are not reasoning entities. If the stomach is attacked with a poison, say a "blue pill" or a glass of grog, it will be true to itself, and yet be satisfied to pass the offending agents off to the liver or the skin. If the

bowels are attacked with a portion of epsom salts, or a dose of "No. 6," they will either pass it off rapidly, or, failing in that, pour out serum to defend themselves. If the circulating fluids are charged with animal oils, the capillary vessels will deposit it in the cellular tissues. All these particular functions act also for the general good; but while each and every function participates in a general way in the preservation of the whole domain of life, each organ has its own special law of self-preservation. Hence when all the organs are struggling to relieve themselves, disorder, and riot, and excess may result. And here right reason may come to the aid of instinct by supplying favorable conditions, as perverted judgment has brought the trouble about by forcing unnatural conditions upon the organism. By all those means which help those efforts of nature to maintain or obtain the circumstances which constitute the normal state, without calling out a further expenditure of vital power, nor adding still other morbific agents, nor chemically injuring the structures, we may truly practice "the healing art."

Crisis of Fever.—Since the days of Hippocrates, the opinion has prevailed that fevers naturally, if left to themselves, evince a tendency to run a certain course, and terminate in a given time by a sudden aggravation of the symptoms, called sinking, or a complete subsidence of them, and the commencement of convalescence. This change has been called the *crisis*, and the days on which it occurs, *critical days*. The 3, 5, 7, 9, 11, 14, 17, and 20, have been regarded as critical days. Because of this tendency, many drug-authors are opposed to all attempts to break up the disease or shorten its course. Their plan is to conduct it through its course; but *how* do they propose to conduct it through its course? Why, by poisoning the body through and through, with course after course of drugs! There is nothing known to civilization more thoroughly barbarian than the drug treatment of a fever.

The subject of crises in acute diseases is of no practical consequence whatever. Under water treatment, the only crisis observable is the cure. Crises proper, under hydropathic management, are known only in chronic diseases, and in these neither crises nor cures are scarcely known in allopathic practice.

Duration of Fever.—The ordinary duration of inflammatory fever is from one to two weeks; the nervous form of typhus, from four to six, or even eight weeks; the putrid form from two to three weeks; remittent fever from two to four weeks, when treated according to the popular system. Intermitting fever is often "broken" in a few days,

but seldom cured, and generally reoccurs at uncertain intervals for months or years. Ephemeral fever is frequently converted, by one unfortunate dose, or a severe bleeding, into a protracted fever which runs several days or weeks. Under water-treatment it is very rare for any fevers, except the eruptive, to hold out over a week; and in eruptive diseases, whose febrile excitement usually continues from seven to eleven days, the violence of the disease is generally entirely subdued within one week. I have never yet personally known a fever run over a week under water-treatment, and I have treated all the common forms in New York city for the last seven or eight years—ephemeral, inflammatory, typhus, ship, scarlet, measles, small-pox, etc.

General Treatment of Fever.—The indications are: 1. To equalize the circulation. 2. To purify the body. Practically these distinctions may be more nice than wise; for all the means best calculated to fulfill one indication are also the best adapted to the other.

Bathing.—Nothing in the way of medication is more beautifully simple and promptly successful than the hydropathic management of a fever. The temperature of the body is the sure and invariable guide for the water processes. If the whole surface of the body is hot, cold water is to be applied by frequent ablutions, or the rubbing wet sheet, or the wet-sheet pack, and often repeated until the temperature is reduced to the natural standard. The pack is the most pleasant and most effectal process, and its soothing and tranquilizing effects upon the whole nervous system far exceed all the opiates in the world. If the temperature rises again, the processes are to be repeated in the same manner. If the feet are cold, they should be held in hot water a few minutes, or a bottle of hot water may be applied to them. Especial attention must be given to warming the feet in all cases where the head is oppressed and the lower extremities are inclined to be cold. In what are called *low* or *nervous* fevers, there is often great heat and irritation of the head, and great torpor, coldness, or numbness of the lower limbs. In these cases it is indispensable to balance the circulation by cold applications to the head and hot to the feet before resorting to the wet sheet. In *very low* fevers, and in all cases attended with extreme prostration and unequal temperature at the outset, frequently sponging the body with *tepid* water, is better than the wet-sheet pack, or very cold ablutions, for the reason that the shock of the latter tends still more to disturb the equilibrium of the circulation. Local pains, spasms, etc., are to be relieved by cold applications or warm fomentations, as either feels most grateful. As a general rule, cold compresses are most beneficial when there is constant heat, tender-

ness, and distention; and warm applications are indicated when the distress is periodic or spasmodic, or when unattended with heat, turgescence, or soreness. Severe headache may be generally relieved by cold wet cloths, and always readily subdued by pouring cold water over the temples and back part of the head for several minutes. This process will also generally relieve the severest retching, nausea, and vomiting.

I have never tried the process of immersion in treating fevers, but have every confidence that it would prove eminently efficacious in all *high* fevers—fevers attended with uniform and general heat of the surface, and a strong, hard pulse.

There is now living in a secluded town in Missouri an old farmer, who has practiced Water-Cure even longer than Priessnitz. A communication from him, addressed to the publishers of the Water-Cure Journal, will occupy two or three pages with as valuable matter as I could select from any source whatever; and, notwithstanding the author modestly desires to have some other name take the credit of giving his experience to the world, I shall take the liberty to record his name, and present his letter in his own farmer-like and unaffected simplicity of style and language:

"EAST PRAIRIE, MISSISSIPPI CO., MO., *Nov.* 30, 1850.

"MESSRS. FOWLERS AND WELLS:

"I am a farmer, in my seventy-fifth year. I have taken your Journal since January last, and have taken Wilson & Co.'s little Dispatch for two or three years, and have always sent to him for any books he advertised on the subject of the Water-Cure, with the request that he would send me the best and plainest he could procure. I think I have seven or eight of them, but in none of your Journals, nor in them, do I see where fevers have been treated with the success that I have treated them with for more than thirty years, and I have never failed in a single case to make a perfect cure in a few minutes. Strange as this may seem, it is nevertheless a fact, and this is the reason why I trouble you with these lines. I have no interest in deceiving you or any other person; and as for having my name published in your Journal as a great Water-Cure doctor, I wish you not to publish this, but give it to some person of your acquaintance in whom you have confidence, who will give it a fair trial, or to several, and if it succeeds, as I know it will, publish the fact in any person's name you please except mine.

"I have treated all fevers, fever and ague, etc., alike. My plan is simply to bathe at the time the fever is the highest; if the fever has passed its highest point, and is going off, I let the patient alone until it

returns. I know nothing of wet sheets, bandages, etc.; but when the fever returns, or gets as high as I think it will go, I put the patient in a hogshead that I keep for bathing. I have him go entirely under water, head and all, for three or four times, keeping his head under each time as long as he can conveniently hold his breath; then let him dabble in it up to the chin until the heat is reduced to the natural temperature, and the patient feels comfortable; then let him come out and wipe dry with towels, put his clothes on, walk about, lie down, or do as his inclination leads; eat what he will, drink what he pleases; as for rubbing, I do nothing of the kind. I pay no attention to the temperature of the water, the object being to bring the patient to the natural heat, and this can be done in fifteen or twenty minutes.

"When I have no convenience for bathing, and, in fact, sometimes, as a matter of preference, I pour water on the patient's head, instead of bathing; and, surprising as it may seem, this always has the same effect that bathing has, and I do not know that it takes longer to cool the body in this way than it does by bathing. I have the patient lie with the head over the edge or side of the bed, so that the water will not wet the bedding. I then get a bucket of the coldest water, place it under the head, and pour the water over the back of the head from one temple to the other, the patient lying with the face downward. I pour it on moderately, and at the height of the fever; I think it will have little effect if done at any other time. Pouring water on the head in this way will cool the whole body nearly or quite as soon as going all under water, as before directed. If the water is not poured on long enough at first, the fever will return in a few minutes, but repeat the pouring then as at first. I have known the fever return twice before it was finally driven away.

"The next day after the treatment the patient is capable of attending to business as usual, and I do not recollect a case in which the patient had another attack the same season. There is one thing I cannot understand—how pouring water on the head should relieve the stomach of bile; but so it is; let the patient be ever so sick at the stomach, and incline to vomit ever so much, in two minutes after you begin to pour water on the head, the stomach is relieved, and there is no more of that trouble. As before stated, the cure is completed in a few minutes, and it is a permanent cure, and a cure that all persons can perform at home without any inconvenience. The shortest time I have seen noted in any of your books to cure the fever and ague is five days, and that with your wet sheet, etc.; I am sure this plan is a great deal easier, and much quicker; and again, these books give no directions when to commence the treatment, which I am certain is a mate-

rial point. I am sure if my mode is not employed as directed, at the height of the fever, it will fail. As stated in the beginning, I am no doctor, neither did I make this discovery myself. I lived forty-two years on the Sciota bottom-lands, in Sciota county, Ohio, the most noted place for bilious complaints perhaps in the world. A physician who had attended my family, being about to move away, I asked him whom I should apply to after he was gone, in case of sickness. He then told me how to apply water in all cases of fever. I have now tried it more than thirty years, and have never failed.

"The effect the cold bath had on me last spring, in the worst dysentery I ever experienced, which I learned from Dr. Shew's Water-Cure for the cholera, no person would believe. I could name a great many cases of different kinds of bowel complaints, which have been successfully treated with Water-Cure; but it is a very smart undertaking for me to write a few lines, my hand is so unsteady, and I fear it will be a greater task still for you to read them. But I thought it was a duty I owed the community to make known my experience in the treatment of fevers with water, especially as there is considerable stir at this time about the Water-Cure. But I have found that almost ninety-nine in a hundred have been opposed to the application of cold water in any case whatever. The few who have tried the cure as directed, have never failed to get well speedily; yet, even they would almost always, on the next attack, apply to a drug-doctor. In the cases of small children, I have induced their mothers to hold them in a bucket or tub of water, and wet their heads continually for five minutes. I have never known this fail to cure the chills and fever; let it be done also when the fever is at the highest.

"I am respectfully yours, etc.,

"Abraham Millar."

Since I have been in possession of the old farmer's experience, I have employed the pouring head bath more freely than ever before, and never without decided benefit. I deem it a valuable auxiliary to the wet sheet in all high fevers; in low fevers it cannot be as promptly successful, yet may be very serviceable; but care must be taken to keep the lower extremities warm, lest its application should produce reaction toward the brain. It will not, of course, cure protracted agues which are complicated with enlargement of the liver or spleen, but may in those cases very much shorten the duration of the disease if employed according to Mr. Millar's directions.

There is another very simple and very efficacious method of treating an ordinary fever, which has the advantage of always being convenient,

and may, for this reason, be preferred by those who do not well understand the management of the wet sheet, or who have not conveniences for the immersion or plunge-bath. Place the patient in a hip-bath—a common wash-tub—and two pails of water will answer; let the water be of a moderate temperature, 65° to 75°, and wash him all over the back and chest while in the tub; apply, also, several folds of linen to the head, wet in cold water, and changed very often until the head becomes cool, and if there is the least tendency to coldness of the feet—as there will be if there is great determination to the head—put them in a pail of warm water. The patient may remain in the bath five, ten, or fifteen minutes, if his strength permits. This process may be repeated as often as there is an exaggeration of the hot stage of the febrile paroxysm. When the patient is too weak to sit in the tub, the head and feet may be treated as just recommended, and the whole surface of the body frequently sponged with tepid water while the hot stage continues.

There are some cases of low nervous fevers wherein the heat is very unequally developed—the pulse very small and weak, the head oppressed or giddy, with great tendency to faint on slight exertion. In these cases reaction is so feeble that the full pack, so far from soothing the patient, increases the internal congestions, rigors, and local pains. Here the proper plan of treatment is to soak the feet occasionally in warm water, applying very cold compresses to the head at the same time; apply cold wet towels to the stomach, bowels, and back whenever there is continuous heat and tenderness about those parts, and sponge the whole surface of the body over with *tepid* water frequently whenever there is general and uniform heat and dryness. Continue this plan until the fever is gradually and finally abated.

Water-drinking.—Water should always be taken freely when there is thirst; and when the heat and dryness of the surface is great, and the tongue parched, it should be taken as copiously as the stomach will bear without unpleasant distention, even though there be no distinct sensation of thirst. In this case it should be taken frequently, but in small quantities at a time.

The Excretions.—When the bowels are not entirely free, they should be moved by one or more tepid injections. This may be done either before or after the cooling processes have been employed. Subsequently injections are only required whenever a sense of fullness, hardness, distention, etc., of the abdomen indicate an accumulation of fœcal matters, whether this condition occurs daily, or only once in two or three days. Indian or wheat-meal gruel promotes the action of the bowels, and for this purpose they may be taken to advantage when the consti-

ation is considerable. Emetics are rarely necessary; I never prescribe them, except there is evidence of crude ingesta recently taken into the stomach. In this case the patient should drink warm water until vomiting occurs, or relief is obtained without. Copious warm water-drinking will often relieve nausea and distress from offensive acids, acrid bile, or irritating secretions in the stomach and duodenum, even though it does not produce sickness or vomiting.

Regimen.—Of the importance of free ventilation, perfect cleanliness about the room, frequent changing of the bedding, and the prompt removal of all offensive dejections or excretions, I hardly need speak. Common sense ought to be a sufficient guide in this respect. But there is general error committed by physicians and nurses, in the management of a fever, to which I wish to call especial attention. While all admit the free access of air, many are inclined to shut out the light. This error is more prevalent, according to my observation, in the country than in the city. The patient is often kept in a room so darkly shaded that there is an uncomfortable feeling of dampness or chilliness within, especially when the room is opposite the sun side of the house, or the house thickly surrounded with trees and shrubbery. The influence of light is not only vivifying to the patient, but it tends, also, to decompose and dissipate putrescent or infectious particles which gather in the sick room. There may be cases where the eyes are so excessively irritable and tender to light that it is necessary to shade them, but this should be done by a green vail or other eye-shade, while a good degree of light is admitted into the room. These remarks apply, of course, to natural or daylight, not artificial or lamp-light.

In relation to food and drink, the rule of practice is not difficult to memorize. The patient should drink at all times to the full satisfaction of the sensation of thirst; although, as just observed, when thirst is violent it should be taken frequently in small quantities. Crust-water, corn-coffee, lemonade, apple tea, etc., are no better than pure water in any case; but as patients often have a craving for them, and as they are both grateful and harmless, I would never object to them. Food should not be taken at all until the violence of the fever is materially abated, and then very small quantities of the simplest food only should be permitted, as gruel, with a little toasted bread or cracker, boiled rice, mealy potatoes, baked apples, etc. There is not a more mischievous or more irrational error abroad in relation to the treatment of fever than the almost universal practice of stuffing the patient continually with stimulating animal slops, under the name of "mild, nourishing diet," beef tea, mutton broth, chicken soup, panada, etc. The fever will always starve out before the patient is injured by absti-

nence, at least under hydropathic treatment, and the appetite will always return when the system is capable of assimilating food.

Local Complications.—Among the common incidents attending the progress of a fever treated in the ordinary drug way, are, excessive irritability of the stomach, vomiting, diarrhea, hemorrhage from the liver, bloated abdomen, or *tympanitis*, falling off of the hair, abscesses, boils, obstinate constipation, retention or suppression of urine, topical inflammations, dropsical swellings, etc. Most of these complications are factitious, and owe their existence entirely to drug medication, and are hence wholly unknown to the water-treatment. But as we are often called to patients who have been drugged, more or less, since the attack, we shall frequently have these incidents or accidents to manage. The stomach can generally be quieted by the free use of warm water, followed by bits of ice or sips of very cold water, and the cold compress externally. In a severe case apply also hot bottles to the feet and cold cloths to the head; and if the head be very hot pour cold water on it for several minutes, until it becomes perfectly cool. Diarrhea may be checked by the hot fomentation or warm hip-bath, followed by cool or cold injections. Hemorrhages require the cold compress, cool or cold injections, and bits of ice or frequent sips of very cold water, with the hot foot-bath. Tympanitis requires the same treatment, with occasional hot fomentations. Abscesses and boils need nothing but the wet compress. When the hair inclines to fall off, it should be cut very short, and the head often wet with cold water, but not covered. Constipation is to be treated with tepid injections, as copiously as the exigency of the case demands. Difficult urination can generally be obviated by the fomentation or hot sitz-bath, or these followed by the cold compress, or a dash of cold water upon the pelvic region. In extreme cases the catheter must be employed. Topical inflammations and dropsical swellings each require cold compresses frequently renewed.

Relapses.—I mention this subject only to contrast the condition of convalescent patients who have been through a course of allopathic drugging, with those who have had exclusive water-treatment. The former are always liable to relapses; the latter never.

Ephemeral Fever—Febris Ephemeris.—Some authors have distinguished this fever into three species, *acute*, *mild*, and *sweating*; but the distinction is of no practical utility.

Diagnosis.—Rigors slight, stages of short duration, mental functions scarcely disturbed, terminating in a few hours in a moderate sweat.

The disease often disappears with a single paroxysm, and seldom exceeds two or three.

Special Causes.—A slight cold, an indigestible meal, a debauch, over-exertion.

Peculiarities of Treatment.—The wet-sheet pack for an hour, followed by the dripping-sheet, or cold ablution, or free injection, with fasting for twenty-four hours, will always remove this kind of fever.

Inflammatory Fever—Synochus.—The terms *synocha* and *synochus* are employed quite promiscuously in medical books. Generally, however, a distinction is made, the former term being applied to what is usually denominated inflammatory fever, and the latter to a form of fever which is regarded as a compound of inflammatory and typhus—inflammatory in the commencement and typhus in the end. The truth is, these forms of fever are but different degrees in the violence of the same essential type, which may be called *inflammatory* or *high fever*, in contradistinction to *typhus* or *low fever*.

Diagnosis.—This form of fever is rather peculiar to vigorous constitutions, and to persons of active, out-door habits of life. It may be distinguished from all others by the following assemblage of symptoms: Tongue generally white with red edges, pulse full, hard, *strong*, and quick, though never very frequent. Temperature of the body uniformly high after the fever is fully developed; eyes reddish; urine scanty and high colored; the whole surface preternaturally flushed and turgid; the mental functions but slightly disturbed, or not at all.

If this fever runs much beyond the ninth day, or if it is maltreated at the outset, the tongue becomes yellow, then brown, then black, and many symptoms of an original typhoid supervene. Like all continued fevers it is characterized by two exacerbations during the day; the first and mildest in the forenoon, and the second and severest toward evening.

Peculiarities of Treatment.—Of this fever it has been well said: "The blood is on fire; extinguish the flame, and the patient will be well." The hydropathic treatment is more simple and direct than in any other form of fever. Wrap the patient in double wet sheets, tightly covered with bedding; let him remain as long as he is comparatively comfortable; then wash him off with cold water. Repeat the process as often as the febrile heat increases. The immersion-bath and pouring head-bath, as practiced by Mr. Millar, are peculiarly adapted to this form of fever. In fact, a sufficient quantity of cold water applied in almost any manner, will finally effect a cure. Usually the bowels are constipated in the outset; hence free injections of tepid water are necessary.

YELLOW FEVER—TYPHUS ICTERODES—SYNOCHUS ICTERODES.—Yellow fever is generally regarded as peculiarly contagious, though, I think, quite erroneously. Some authors, among whom are Dr. Good, have placed it among the remittents, on account of the peculiar remission which occurs during its progress.

Characteristics.—Partial or general yellowness of the skin; paroxysms somewhat irregular; great tenderness or pain about the epigastrium, or pit of the stomach; type irregular, which irregularity consists in a marked remission of the febrile symptoms, occurring during the first day or two, usually about forty-eight hours after their access. In severe cases the eyes are intensely red; there is extreme pain in the eyeballs, back, and limbs. The *black vomit*, so alarming to friends and physicians, does not always take place, and when it does happen, I believe it is owing more to mal-medication than to all other causes combined.

Peculiarities of Treatment.—The excessive determination to the brain requires the constant application of the coldest wet cloths, or pounded ice, or the pouring head-bath. The stomach is usually extremely irritable, and requires the cold compress. When retching or nausea is distressing, warm water should be freely drank for a short time, followed by sips of cold water, or bits of ice. The feet should also be placed in hot water for five or ten minutes. The bowels are usually severely constipated, hence a succession of warm water injections should be promptly resorted to. The general treatment is the same as for inflammatory fever.

NERVOUS FEVER—TYPHUS MITIOR.—This has been called "mild typhus," "low typhus," and "slow fever." It usually runs from six to eight weeks under allopathic management. Some cases are attended with such prostration of the nervous system, that the patient either sinks or becomes convalescent in one or two weeks.

Diagnosis.—Great disturbance of the mental functions; dejection of mind; frequent, weak, irregular pulse; tongue covered with a white, thick mucus; eyes suffused; heat of the surface more or less unequal; frequent turns of muttering delirium; countenance peculiarly expressionless; the skin is liable to irregular dryness and sweats; the early symptoms are mild, and increase in violence gradually; the evacuations are not particularly offensive; the urine is commonly whey-like.

Peculiarities of Treatment.—In the nervous form of typhus, the indications are rather to equalize irregular temperature and action than to reduce excessive. In some cases the external heat is so high and

uniform, as to call for the wet-sheet pack; but more frequently the morbid heat is pent up, as it were, in the head and epigastric region, while the extremities are either of the normal temperature or cold. Under these circumstances, the *expectant* plan of treatment, as it has been called, is the best. Apply cold applications to the head, cold, wet towels, often changed, to the abdomen, and bathe the feet in warm water, or apply hot bottles to them; and whenever, under this management, the preternatural heat of the body becomes general, sponge the whole surface frequently with *tepid* water until the febrile heat subsides. Nausea, vomiting, and diarrhea are frequent incidents, and require the processes already frequently named for those symptoms.

Putrid Fever—Typhus Gravior.—This is a more violent and malignant form of typhus than the preceding. Jail, camp, ship, hospital, and several other fevers, usually considered as distinct species, are but modifications of the putrid form of typhus, as influenced by local circumstances, and require no special pathological or therapeutic notice. The *spotted* or *petechial* fever, so called from purple spots appearing on the skin before death, has prevailed extensively in many parts of New England and New York since 1806. It has been very fatal, and was formerly denominated *typhus syncopalis*, or sinking typhus. Medical books also make a useless and groundless distinction between typhus and typhoid fever, on the vague supposition that the latter has its seat more especially in a disease of the mesenteric and Peyer's glands. I reject this distinction as fanciful, if not puerile, and, as the reader will perceive, employ the terms typhus and typhoid indiscriminately.

Diagnosis.—Attack sudden; progress rapid; rigors severe; early and great prostration of strength; extreme anxiety and restlessness; the countenance is expressive of anguish and horror; pulse hard, but small and rapid; tongue dry and brown or black; the skin imparts more or less of a peculiar stinging, prickling, or burning sensation to the touch; the breath is hot and offensive; there is ringing in the ears; throbbing of the temples; intense headache; ferrety redness of the eyes; the excretions of urine and fæces are dark and offensive. In the advanced stage, spots or blotches appear on the skin from effused blood; forming petechiæ, maculæ, vibices, etc. There is great exhaustion of muscular power, and the face wears a livid instead of a florid flush.

Peculiarities of Treatment.—Perfect quiet, and abundance of fresh, unconfined air are indispensable. The bowels should be promptly moved by tepid injections, to be followed by enema of cool water, to

act as a tonic. In the early stages of a majority of cases of putrid fever, the morbid heat is sufficiently developed and uniform to demand the wet-sheet pack frequently repeated; but it is generally necessary to apply hot bottles to the feet and cold compresses to the head at the same time. When the heat is too irregular, and the circulation too low for the full wet sheet, the abdomen should be frequently wrapped in wet towels, and the whole body very frequently sponged over with *cool* or *cold* water. In other respects, the rules already given are sufficient to regulate the treatment.

Remittent Fever.—Remittent fever is distinguished from continued, by being attended with only one daily exacerbation of the febrile paroxysm, instead of two; there is also a greater remission of all the febrile symptoms at the end of the paroxysm, though this remission is not complete as it is in intermittent fever. The remittent type of fever is common to hot climates, but rare in the temperate. It is also especially prevalent in low, marshy districts, in the neighborhoods of stagnant waters, in the vicinity of lands occasionally inundated, and in localities where the atmosphere is loaded with the effluvia of decaying animal and vegetable matters. It is generally attended with great biliary disturbance, and in our southern and southwestern states it is often called "bilious remittent." Sometimes it is called "autumnal remittent," because it more generally prevails in the autumnal months.

The *nervous* and *putrid* forms of remittent are distinguished by the same symptoms which denote the same forms of typhus fever; a general disproportionate disturbance of the nervous system marking the former, and all the evidences of putrescency and extreme exhaustion manifesting the latter.

All the general and special directions for treating the different forms of continued fever will equally apply to the same forms of remittent. It should be remarked that many cases of remittent fever—and the same is true of typhus fever—do not, on their first access, exhibit distinctly either the nervous or putrid type, although they always conform more especially to one or the other as they progress. In all these cases, the character of the fever will approximate inflammatory, synochus, or *high fever*, and should be managed accordingly.

Intermittent Fever—Ague and Fever.—Fever and ague seems to be especially connected with congestions in and functional derangements of the liver and spleen. Enlarged livers and spleens, called ague cakes, are very common sequelæ of intermittents, although they are not unfrequently detected after protracted or repeated remit

tents. What are called "chill fever" and "dumb ague," are disguised or imperfectly-developed forms of intermittent. This disease is common to miasmatic localities and new countries, where decomposing vegetation abounds, and places where the dense foliage and stagnant waters fill the air with carbonaceous and hydrogenous gases, are much more subject to it than those which have been longer under cultivation. It is very prevalent in many parts of our Western States; and with the bad living which helps to produce it, and the huge doses of calomel, arsenic, and quinine given to cure it, a large proportion of those who "westward follow the star of empire," find their constitutions irretrievably ruined.

Diagnosis.—The intermittent type of fever is readily distinguished by the violence of the paroxysm, the regular succession of the cold, hot, and sweating stages, and the complete subsidence of all the febrile phenomena at the end of the sweating stage, this subsidence amounting to a periodical intermission of the disease.

Peculiarities of Treatment.—Intermittent fever exhibits a variety of forms, as—*quotidian ague*, having an intermission about every twenty-four hours; *tertian ague*, the intermission about forty-eight hours; *quartan ague*, intermission about seventy-two hours: to which some authors add sub-varieties, called *irregular* and *complicated*. These distinctions do not affect the question of treatment. The bowels should be well cleansed with tepid injections, and when there is much nausea, or bitter taste in the mouth, a warm water emetic is advisable. The wet sheet, or the immersion, must be resorted to during the hot stage, and the pouring head-bath when there is great determination to the brain, with severe headache. During the intermission, a hot bath, followed by the cold dripping-sheet, or cold shower, will generally soothe the nervous system, and mitigate the severity of the succeeding paroxysm. As the liver is always in a state of greater or less congestion, the abdominal bandage should be worn constantly.

We find this disease under such diverse circumstances, and with so various complications, that there is room for considerable skill in its management. Recent cases are effectually cured by a few packs, or a single immersion, except when the causes have been a long time accumulating. But frequently the liver or spleen is enlarged, or both may be in a state of congestion, and there is a dyspeptic condition attending it. Very often the skin is extremely torpid, and full of viscid, hardened, and impacted bile, the conjunctiva of a reddish-yellow, and, although sweating is easily produced, the real function of perspiration is scarcely performed at all. In these cases we may perhaps very soon "break the fits," but to effect a permanent cure, the functional

actions of the liver, spleen, and skin must be established. Until this is done, the *feverish* and *agueish* symptoms will exist in a more or less disguised form, or the disease will exhibit some other irregular form, and constitute a predisposition to glandular enlargements, dropsical accumulations, chronic and spasmodic rheumatism, etc. These cases require an active treatment for several weeks; and in some few cases, where the constitution has been shattered by repeated fevers in malarious districts, and more especially when the patient has been repeatedly cured by arsenic, quinine, calomel, etc., several months' time are required to effect a cure.

Regimen.—In continued and in remittent fevers, and in most other acute diseases, we have very little trouble about the diet, save keeping it away from the patient; nor much difficulty in this respect, for generally there is no morbid appetite in the way. But with intermittent fevers, which may be regarded as chronic diseases with acute paroxysms, the case is somewhat different. In those cases which linger several weeks, we must, of course, look to the nutritive function. Here we have not unfrequently to restrain the dyspeptic's craving for accustomed stimulants, the hypochondriac's rage for excessive quantity, and the epicure's goading desire for tit-bits and seasonings. We cannot turn the patient off "old-school" fashion, with, "Eat and drink what you find agrees best," and draw on the apothecary for the curatives, but it is our business to know exactly what will agree best, and so prescribe "according to knowledge."

The best diet is wheat-meal bread, cracked-wheat mush with a very *little* milk and sugar for seasoning, a very moderate quantity of the milder vegetables, and the free use of good, ripe, sweet apples, either baked or boiled. Grapes, tomatoes, prunes, and good dried fruits, are not objectionable. The crust of good sweet bread, and dry toast, or hard crackers, are excellent to improve the salivary and gastric secretions.

Water should be drank rather freely, on account of the tendency to waste the serum by perspiration. Exercise should always be moderate. Over-exertion during the intermission always aggravates the subsequent paroxysms. Sailing and carriage-riding are the most advantageous exercises.

Symptomatic Fevers.—These are treated on general principles as far as the constitutional disturbance is concerned, reference always being had to the primary affection. As they depend on a local pathological condition, they will be particularly considered under the heads of the idiopathic diseases, of which they constitute the symptoms.

SMALL-POX—VARIOLA.—The small-pox is a contagious eruptive fever, affecting both the skin and mucous membrane of the mouth, throat, stomach, and lungs. Its access is a fever; this is followed in three or four days by an eruption, which is *papular* at first, then *vesicular*, and lastly *pustular;* the pustules are *pointed* at first, but afterward become *umbilicated*. The eruption terminates in twelve to seventeen days in dessication and scabbing, leaving larger or smaller irregular cicatrices.

Species.—This disease appears in three forms: 1. Distinct small-pox—*variola discreta*. 2. Confluent small-pox—*variola confluens*. 3. Modified small-pox—*varioloid*. The *first* variety is the mildest; the eruption is regular, the vesicles distinct, and the fever of the inflammatory type. The *second* variety is the most severe; the vesicles are irregular and mixed, and mature imperfectly, and the accompanying fever is typhus. The *third* variety is the small-pox as modified by vaccination, or a previous attack.

Stages.—The phenomena of variola are divided into four stages: 1. *Incubation*, or the latent period; being the time that intervenes between the inception of the virus and the first appearance of the symptoms. This period varies from six to twenty days. 2. *Invasion*, which extends to the eruption, usually three or four days. 3. *Eruption*, the vesicating and pustulating period, extending to the eleventh or twelfth day. 4. *Dessication*, extending to the time of cicatrization, usually about the seventeenth day. The time from the *third* to the *eighth* day, during which the papulæ change to pustules, is called the period of *maturation*.

Symptoms of Distinct Small-Pox.—The attack is characterized by the usual premonitory symptoms of a violent fever, as chills or rigors, lassitude, headache, pain and weakness in the back and loins, tenderness about the pit of the stomach, frequent nausea and vomiting, drowsiness, sometimes stupor, or coma, and with infants convulsions are frequent occurrences. These symptoms are succeeded by general heat of the body, dry skin, coated tongue, frequent pulse, and extreme restlessness, which continue until the eruption appears, when they partially subside.

The eruption appears first on the face and forehead, in the form of minute spots or papulæ, sensibly elevated above the surface of the skin. They are first noticeable about *forty-eight* hours after the occurrence of the rigors. During the *third* and *fourth* days the eruption extends to the sides of the nose, chin, upper lip, neck, and wrists, then to the trunk and thighs, finally covering the whole body. About the *fifth* day, little vesicles, depressed in the center, containing a colorless fluid,

appear, surrounded by an inflamed circular margin, one vesicle arising on the top of each little point or pimple. Usually the eruptive fever further abates, or entirely disappears at this time. There is generally, though not always, an increased flow of viscid saliva, some swelling of the throat, with hoarseness and difficulty of swallowing, about the *sixth* day.

On or about the *eighth* day, the pustules are completely formed and spherical, terminating in a point, and the vesicular fluid becomes purulent; the face and eyelids swell, and the mouth, nose, and fauces are covered with pustules. About the *tenth* or *eleventh* day from the access of the fever, or *eighth* or *ninth* from the appearance of the eruption, the inflammatory areola surrounding the vesicle subsides, the contents change to an opaque yellow, and a dark spot appears on each pustule. Usually at this time the tumefaction of the face subsides and the hands and feet begin to swell. After the *eleventh* day the pustules become rough, break, discharge their contents, which, by drying on the surface, form small crusts. In a short time these crusts fall off, leaving the part of a dark brown color, which often remains many days, and when the pustules have been very large, permanent indentations of the skin remain. About the *seventeenth* day, the *secondary fever*, which comes on about the completion of the pustulation disappears, and the swelling of the hands and feet subsides.

Symptoms of Confluent Small-Pox.—The eruptive fever is more intense, the strength is greatly prostrated, coma and delirium are frequent, and profuse diarrhea or salivation is often present. The eruption is preceded by an erysipelatous efflorescence upon the face, from which the pustules emerge on the second day, in the form of small red points, which run together, and form clusters, resembling measles. The pustules are irregularly shaped, and contain a dark, ichorous matter, instead of true pus. When the crusts begin to form, the whole face is covered with a general scab, which falls off from the fifteenth to the twentieth day. The fever does not cease upon the appearance of the eruption, but about the ninth day suffers a remarkable exacerbation; in very bad cases, the eruption becomes livid or black, and petechiæ, hemorrhages, bloody urine, and exhausting diarrheas occur. Should recovery take place, the pits or scars will be much deeper than in the preceding form. The patient frequently dies about the eleventh day.

Symptoms of Modified Small-Pox.—The eruptive fever, though generally severe, usually lasts but a single day. On the following day the eruption appears; first on the wrist and about the nose. Frequently a pimple on the *ala* of the nose gives an indication of the nature of

the malady. The course of the disease is shorter, and the symptoms more irregular than in the other forms. Some of the eruptions progress to perfect pustules; others die away without suppurating. As soon as the eruption appears, the patient is well, unless it is sufficiently extensive to keep up some degree of irritative fever.

Diagnosis.—The diseases with which small-pox is liable to be confounded, especially in its early stages, are—Chicken-pox—*varicella;* measles—*rubeola;* scarlet fever—*scarlatina;* and erysipelas. Variola may be distinguished from chicken-pox by the pimples appearing on the back, the maturation of the pustules on the third day, and the absence of suppuration and indentation, which characterize the latter disease; from measles, by the hoarseness, moaning, swelled eyelids and watery eyes, which attend the attack of measles, and the eruption appearing in crescentic clusters, not rising into visible pimples; from scarlet fever, by the strawberry appearance of the tongue, and the bright scarlet efflorescence of the skin, which usually appears on the second day in the latter disease; and from erysipelas, by the eruption or efflorescence being of a florid red color, and spreading from a particular point over a large surface, in the case of erysipelas.

Prognosis.—The result may be judged of by the condition of the body at the time of attack, and the intensity of the fever. It is generally favorable in the distinct and modified forms, and generally unfavorable in the confluent form. Dangerous symptoms are the pustules becoming flattened, livid, and interspersed with discolored spots, a sudden disappearance of the eruption, general pallor of the skin, with great anxiety and extreme prostration of strength, and complications with local affections.

Post-Mortem Appearances.—After death, dissection has shown the windpipe, bronchial vessels, lungs, liver, stomach, and intestines to be covered with pustules, with local inflammations in various organs; the whole body runs rapidly into putrefaction.

Causes.—Variola is produced by a specific contagion. Its nature has thus far eluded the recognition of our senses, and probably never will be detected by chemical analysis. The virus seems to act like a ferment in relation to some one or more of the elements of the blood, analogous to the process of saccharine fermentation. It is produced by subjecting the body to the effluvia arising from those who already labor under the disease, or by introducing a small quantity of the purulent matter of the disease into the system by inoculation. A doctrine has lately been started that the changes effected in the blood by the contagion of small-pox were a purifying process, analogous to the working of a barrel of beer. But the theory is refuted by the fact that all fer

mentation is a destructive process, absolutely decomposing the saccharine and other fermented matter, and resolving it into its ultimate elements.

Laws of Contagion.—It is communicated by contact, or through the atmosphere, by pustules, or substances imbued with the variolous matter, and equally by the living or dead body. It is occasionally epidemic. Sometimes, though rarely, it occurs twice in the same person.

Mortality.—From the statistics which have been collected, it appears that one in three or four cases are fatal. In the modified form, or in those who have been vaccinated, the mortality has been much less—about one in twenty. The periods of life of its greatest mortality have been under five and over thirty years of age; the ratio increasing below and above those ages, and being the least between them.

Sequelæ.—Medical books describe a long catalogue of diseases as the consequences of small-pox, some of which are more to be dreaded than the disease itself. Among these are *boils*, *abscesses*, *ulcers*, *gangrene* or *sloughing of the skin*, *erysipelas*, *suppuration of the joints*, *hip disease*, *ophthalmia*, *blindness from opacity of the cornea*, *inflammation of the serous membranes of the chest and abdomen*, *tuberculated lungs*, *consumption*, *mesenteric disease*, and *scrofula*. Some of these sequelæ doubtless result from frail organization, more from bad habits of living, and still more from unfortunate medical treatment.

Prevention.—Physicians are not at all agreed as to the propriety of resorting to vaccination as a protection from small-pox. The vaccine virus is the variolous matter modified by passing through the organism of the cow, or some other of the domestic animals; hence the disease resulting from its introduction to the human system is called *vaccinia* or *vacciola*, *cow-pox*, *kine-pox*, and *vaccine disease*. There is no question that it is, to a great extent, a protection from the violence and danger of the natural small-pox; at the same time there is danger of inoculating the patient with some loathsome and even worse disease, as venereal, or scrofula, from the impossibility of always getting a supply of vaccine matter from healthy constitutions. In either way there is a risk to incur, and it is a delicate matter for a physician to advise on a subject when both sides are hazardous. I am fully convinced that if people could bring up their children in strict physiological habits, the non-vaccinating plan would be altogether the best; but in a city this seems next to impossible, and in the country it is pretty generally neglected. Children reared healthfully in relation to food, exercise, and ventilation, have little to fear from any disease, however contagious; they may have this, but it will not endanger life, nor produce much deformity nor serious injury. I have seen, within the last year, a most horridly loathsome case of scrofulous disease, in which the patient

literally rotted alive at the age of fifteen, from unhealthy virus received when he was but three years of age. Parents often find some one of their children tainted with morbid humors, unlike any other member of the family, and which they are wholly unable to account for, except on the supposition of foul matter taken into the system by vaccination. My own practice would be to keep children as healthy as possible, and if the small-pox happen along, let it have its natural course. Those who have the means to do the same I would advise to act accordingly, while those who live, move, eat, and drink after the ordinary manner, would have a better chance at chances by resorting to vaccination.

Treatment.—As in all fevers, whether eruptive or not, the temperature of the body is the guiding principle in the treatment. To regulate the temperature and equalize the circulation, are the leading indications. On the access of the febrile symptoms, the bowels, unless entirely free, should be moved by tepid injections. When the fever is fully developed, if the heat is not great, tepid or cool ablutions to the whole body will moderate it sufficiently; if the fever is severe, and the heat extreme, the wet-sheet pack should be resorted to, and resumed as often as it becomes warm, until the skin becomes soft, and the temperature near the natural standard. Give the patient as much water to drink as the thirst demands. Give no food save Indian or wheat-meal gruel, and not that unless the appetite calls for it. Nursing children may take the breast as usual, if inclined. From the second to the fourth day, when the efforts of the organism are determined to the skin to produce the eruption, be cautious in meddling with the stomach and bowels. Thousands have been killed outright by an emetic or strong purgative administered at this critical period. At this time all the vital energies are aroused to throw the virus off through the surface, and if, by an irritating emetic or cathartic, this action be repressed, and the force or the disease directed to the stomach and bowels, death may be the speedy result. The principle here involved affords a satisfactory explanation of the superior *safety* of the homeopathic treatment, compared with allopathic, in all eruptive fevers, as has been frequently demonstrated in practice in the management of scarlet fever.

After the excessive febrile heat is subdued by ablutions or packings, two cool or tepid ablutions daily, morning and evening, will generally be sufficient through the whole course of the disease. Should the extremities at any time become cold, bottles of hot water should be applied. There is often a strong determination to the brain, evinced by headache, delirium, convulsions, etc., when cold wet cloths should be applied.

The secondary fever requires precisely the same medication as the primary, though if the former has been well managed, the latter gives but little trouble.

Ventilation is specially important; the patient should be kept in a large, well-aired room, of even and rather cool temperature.

Various expedients have been tried to mitigate the itching that often attends the desiccation of the pustules, as well as to prevent pitting or scarring. None have, however, been found of much service. Washing the sores with cold cream is as harmless, and probably as useful, as any thing which has been suggested.

Note.—The symptoms of small-pox, in the above article, are stated as they occur in patients whose habits of life pattern after the usual fashions of society. The hydropathic practitioner will often find them very materially modified in persons who have for a considerable time been accustomed to a hydropathic regimen, especially in children who have been trained on the principle of "eating to live," instead of that of "living to eat." Indeed, in such cases many of the symptoms laid down in medical books as characteristic may be entirely wanting. I have a case at this writing under advisement, which strikingly exemplifies the difference between an eruptive fever occurring in a very healthy or a very unhealthy person.

Under judicious water-treatment, this frightful disease becomes divested of most of its terrors, and there is little danger, except in a person of extremely gross habits and foul blood, of the skin being permanently pitted or scarred.

Cow-Pox—Kine-Pox—Vaccinia—Vaccine Disease.—The vaccine matter is usually inserted under the cuticle, by three or four punctures, in one or both arms. On the *second* day small, red, hard spots appear, which increase sensibly on the *fourth*, and on the *fifth* become small pearly vesicles, soon after surrounded by a pink or crimson flush. On the *seventh* or *eighth* day the areola becomes circular or angular, and about an inch in diameter. The vesicle is uneven, with a central depression. On the *ninth* day the flush is increased, hard, and tumid, often attended with an erythema over the arm or whole body. About the *tenth* day there is a slight febrile paroxysm. On the *eleventh* or *twelfth* day the redness diminishes, the center of the vesicle is covered with a brown scab, which comes off about the twentieth day, leaving a deep, circular indentation, about an inch in diameter, with as many cells as there were cells in the vesicles.

The vaccine virus is usually selected from the fifth to the twelfth day.

This disease requires no medication, save what is due to personal cleanliness, and "temperance in all things."

Chicken-Pox—Swine-Pox—Bastard-Pox—Varicella.—This disease is characterized by slight feverishness, followed, within *twenty-four hours*, by an eruption of small, reddish pimples, appearing first on the back, very much resembling the first appearance of the eruption of small-pox. On the *second* day, the pimples become small vesicles filled with a colorless or yellowish fluid; soon after a thin scab forms at the top, without pus. About the *fifth* day the eruption disappears, without leaving any mark or cicatrix.

A daily wash of the whole surface of the body, with one or two wet-sheet packs, should there be at any time accidental feverishness, with a spare vegetable diet, is all the remedial attention it requires.

Measles—Rubeola—Morbilli.—Nosologists divide this exanthem into two species, the *common* and the *malignant*—*rubeola vulgaris* and *rubeola maligna*. The first species is the mild form; the second is the violent.

Symptoms.—The early symptoms resemble catarrh, or influenza—cough, hoarseness, difficulty of breathing, frequent sneezing, itching of the face, smarting of the eyes and eyelids, nausea, thirst, etc. The eruption first appears on the *fourth* day, consisting of small red points on the face, thence extending downward over the body. These points do not rise into visible pimples, but are disposed in crescentric clusters, which feel a little prominent to the touch. On the *fifth* or *sixth* day the bright red color changes to a brownish hue, and in a day or two more disappears entirely with a mealy or furfuraceous desquamation of the cuticle.

The fever rather increases with the eruption, and is attended with pneumonic symptoms, as cough, soreness of the chest, and oppressed respiration. It usually abates considerably at about the end of the first week.

In the *malignant* form the eruption is earlier and more irregular, often receding and re-appearing, and of a dark or livid hue. The febrile symptoms are more severe, the abdomen is very tender, the head is delirious or comatose, the lungs are inflamed, and diarrhea and convulsions often occur.

Peculiarities of Treatment.—The mild form should be treated on precisely the same plan as simple inflammatory fever, and the malignant form should be managed exactly like typhus fever of the putrid

type. Nothing brings out the eruption so promptly and effectually as the wet-sheet pack, and at the same time moderates all the symptoms of violent disorder in the circulating and nervous sytems. When the eruption comes out full and free, and the fever is not violent, occasional tepid ablutions are sufficient. When there is much soreness of the throat, several folds of wet linen should be applied. Severe cough, pain in the chest, or inflammation of the lungs, requires the chest-wrapper, applied very wet, and well covered with dry flannel. Diarrhea, when present, should be treated with *cool* injections.

Sequelæ.—Under allopathic treatment, this disease exhibits an appalling catalogue of consequences, as—*Pneumonia, cynanche trachealis, bronchitis, consumption,* chronic *diarrhea, enlargement of the mesenteric glands, ophthalmia, abscesses in the ear, ulceration of the parotid glands, apthæ and gangrene of the mucous membrane of the mouth.* I apprehend that these sequelæ are to be attributed, in the main, to the drugging by which one poison is atttempted to be got out of the body by the introduction of a dozen others. It is certain that measles has been extensively treated in many different places in the Water-Cure way; and I have never yet known nor heard of a single death, nor of one of these resultant diseases.

Scarlet Fever—Scarlatina.—This exanthem appears in three distinct forms or species: 1. *Scarlatina simplex*—simple scarlet fever. 2. *Scarlatina anginosa.* 3. *Scarlatina maligna.*

Symptoms.—After the ordinary premonitory symptoms of general fever, a bright scarlet efflorescence appears, usually on the *second* day, first on the face, neck, and breast, extending downward over the trunk and limbs. At first the eruption consists of innumerable red points, between which the skin exhibits the natural color; these spots finally coalesce, so that in a few hours the red flush is universal. On pressure, the skin looks pale, but readily recovers its redness when the pressure is removed. In *one* or *two* days more the efflorescence again becomes partial, and is disposed in large, irregular patches, which do not disappear on pressure. The skin feels rough to the touch, and is occasionally studded with small miliary vesicles. About the *fifth* day the rash begins to decline, is indistinct on the *sixth*, and generally disappears wholly by the *eighth.* Desquamation of the cuticle commences about the end of the fifth day on the parts first affected, now extending over the body. On the trunk and limbs the cuticle comes off in the form of scurf, and from the hands and feet in large scales. At this time the mucous membranes are more or less affected. The eyelids, lips, edges of the tongue, nostrils, and palate exhibit a bright red color, the tonsils

are enlarged, and there is difficulty in swallowing. The fever disappears with the rash.

Such is scarlet fever in its mild form. The *anginose* variety is characterized by more severe general symptoms, dejection of mind, pain in the head, soreness and stiffness of the muscles of the neck. On the *second* day, hoarseness, difficulty of swallowing, hurried breathing, interrupted by frequent sighing, breath hot and burning to the lips, heat of the surface very great, weak and frequent pulse, pungent, prickling pains. On the *third* day the face, neck, and breast appear redder than usual, or scarlet patches appear about the mouth and nose. The sub-maxillary glands are enlarged and painful, the palate, tonsils, and pharynx are reddened, specks and collections of thick mucus are observed about the mouth and throat. In a few hours, an intense redness prevails over the whole body, which is perfectly smooth to the touch. On the *fifth* or *sixth* day the deep scarlet is succeeded by a brown color, the skin becomes rough, and peels off in small scales.

The *malignant* form has been extensively known by the name of *putrid sore throat*. It is distinguished by intense inflammation of the throat at the outset, soon proceeding to deep ulceration and extensive sloughing. All the salivary glands are much enlarged, the eruption appears later in irregular patches, often disappearing suddenly. The general symptoms are all indications of the worst or putrid form of typhus fever.

Diagnosis.—Scarlet fever may be distinguished from *measles*, by the absence of cough, sneezing, and catarrhal symptoms; by the throat affection; by the peculiar strawberry appearance of the tongue, and by the greater extent and less defined form of the eruption.

Sequelæ.—The books give us about as terrible a list of diseases following on as the sequelæ of the scarlet fever, as they do in the case of measles. In the list are—*Anasarca*, or *general dropsy, enlargements of the joints, scrofulous affections, discharges from the ears, ulceration of the glands of the neck, ophthalmia, and inflammatory affections of the internal viscera.* But, as in the case of measles, I regard these consequences as owing much more to maltreatment than all other causes put together.

Peculiarities of Treatment.—The melancholy records of medical science afford on no page a stronger exemplification of

"The *deadly* virtues of the healing art,"

than on that wherein is written the management and fatality of scarlet fever. One, two, three, four, five, and even six members of a family are sometimes successively attacked and successively die—whether cut

down by the disease, or killed by the *remedies*, or hurried to the grave by their combined power. Some dozen years ago, I knew a regular physician to treat his three children—all he had—with the ordinary leeching, puking, purging, and antimonializing routine, and they all died; and I have not the least doubt he has treated all the cases he has had in the same way ever since, without even the suspicion that there was any possibility of a better way. About fifteen years since the disease prevailed epidemically among children in several places in western New York. I happened to be acquainted with two physicians residing in adjoining towns, whose practice was somewhat different. One bled freely, and gave liberal doses of purgative medicines. He lost about twenty patients; in several instances two, and in two instances three dying out of one family. The other bled only in a few of the milder cases, avoided all drastic purgatives, confining his treatment mostly to gentle laxatives, simple diaphoretics, and astringent gurgles. This physician lost but one case, although he treated a larger number than the former one. Both physicians had their particular friends and admirers, and I have no manner of doubt the doctor who lost twenty patients acquired just as much reputation as a skillful practitioner, and enjoyed just as much of the confidence of the people, as the doctor who lost but one patient; so blindly are people wedded to a routine in which they have been educated.

The *mild form* requires very little treatment. Occasional ablutions of tepid water, or the wet-sheet pack once or twice a day, if the fever is high, with a free injection of warm water to clear the bowels, if the abdomen is constipated, swelled, or painful, are sufficient.

Both the *anginose* and *malignant* forms require careful management. Employ the wet sheet, ablutions, or tepid sponging, according to the principles already stated. The feet generally incline to be cold, and particular care must be taken to have them warm and comfortable whenever the pack or any general bath is resorted to. Hot bottles or hot foot-baths answer this purpose. The throat is the most endangered part; in the *anginose* form, the swelling must be treated with the constant application of cold wet linen cloths, well but loosely covered. In the *malignant*, or *putrid* form, the coldest water, or pounded ice, should be frequently applied around the neck, and sips of iced-water or bits of ice occasionally taken into the mouth. On the access of the disease move the bowels moderately with warm water injections, aided by the drinking of warm water or gruel, if necessary. Whenever diarrhea attends, employ cold enema. Be careful and not disturb the stomach and bowels during the eruptive effort. If there is then great sickness or nausea apply very cold compresses to the abdomen. Ex-

cessive restlessness, anxiety, delirium, or violent headache may be best relieved by a hot foot-bath, with a cold compress to the head, or, if the patient is able to sit up, a warm hip bath.

There is often a considerable degree of blindness and deafness, as well as difficult respiration, attending the swelled throat; and physicians and friends will often, for these particular symptoms, insist on a little leeching, or a mild emetic, or a smart cathartic, or a barbarous blister. They are all bad, worse, or worst. There are states and stages in a severe case of scarlet fever, in which a single dose of an ordinary emetic or purgative, or a single bleeding, would be inevitably fatal; and it is to be regretted that so few physicians can or will understand this fact. In scarlet fever, as in all the exanthemata, there is a period when all the vital powers combine in a general effort to throw the morbid virus and febrile irritation upon the surface. It is at this precise time that the allopath regards the intensity of the fever as an indication for the lancet, or a relaxing emetic, or a depleting purgative. If he employs either of them at this critical moment, he either suppresses this effort, or produces a revulsion of the whole force of the disease to the internal mucous membrane, resulting, perhaps and probably, in inflammation, disorganization, and death.

Dr. Johnson, in relation to the diet for scarlet fever patients, says: "If there be appetite, farinaceous puddings should be given; if not, beef-tea, mutton-broth, gruel, barley-water, etc. Should the eruption come out languidly, and symptoms of great debility and oppression set in, no cold water should be allowed, but the mutton-broth, etc., should be given quite hot; and ten, fifteen, or twenty drops of aromatic spirit of ammonia, in water, twice a day; and hot tea should be administered while lying in the wet sheet." I protest against this whole plan of medication as being neither hydropathic nor rational. Nothing can be more preposterous than forcing food, especially stimulating animal slops, into the stomach, during a high fever, when the digestive powers are utterly prostrated. In lieu of the hot tea, hot broth, and hot spirit recommended by Dr. Johnson, the warm foot-bath, or hot fomentations to the abdomen, will, in the case supposed, supersede all necessity of employing these slop-drug preparations, as has been abundantly proved in the thousands of cases of this fever which have been successfully treated by American hydropaths, without, as far as I have heard, losing a single case when *no* drugs or animal slops were employed.

Erysipelas—St. Anthony's Fire.—This affection has been divided into *idiopathic erysipelas*, produced by the general causes of fever, and *traumatic erysipelas*, resulting from wounds and injuries. The

latter species frequently follows surgical operations performed on persons whose systems are gross, and whose blood and secretions are very impure. For therapeutic purposes these distinctions are unimportant.

Symptoms.—After the usual febrile chills, nausea, vomiting, etc., the patient is affected with great confusion of the head, amounting often to delirium or coma; the tongue is *moist*, and *uniformly white;* the pulse full, frequent, and compressible. About the *second* or *third* day, some portion of the skin exhibits a florid red color, from which the efflorescence spreads gradually, being bounded by a distinct margin, slightly elevated. The efflorescence extends until it occupies a large surface, attended with considerable swelling, and a peculiar acrid heat of the inflamed parts. When the face is the part principally affected by the efflorescence, the eyes are often closed by the swelled eyelids, and the whole hairy scalp is more or less inflamed. The efflorescence terminates in a few days, the time varying considerably, in the formation of vesicles, or in desquamation of the cuticle. The fever has the usual daily exacerbations of the continued type, but rarely manifests any marked remission until the eruption ceases to spread, from which time. in favorable cases, convalescence commences.

Special Causes.—No two diseases are more intimately connected with bad dietetic habits than erysipelas and scarlet fever. Both are very prevalent where swine-food, greasy sweet-cakes, and concentrated preparations of food are plentiful. Sudden changes of temperature operating on a system inflamed by gross or obstructed by constipating aliment, seem to be the principal circumstances on which these forms of eruptive fever depend.

Occasional Terminations.—This disease, medical books tell us, often terminates in a dropsical swelling—*erysipelas œdematodes;* deep-seated ulceration of the cellular membrane—*erysipelas gangrænosum*, *metastases* to internal organs; and sometimes it suddenly disappears in one part, and attacks a distant one—*erysipelas erraticum*. These sequelæ, however, like those of all the other exanthemata, are, to a much greater extent, attributable to injudicious treatment, or drug-treatment, than to all other causes combined.

Peculiarities of Treatment.—As in the case of all the other eruptive fevers, the general fever and the local inflammation may exhibit all degrees of violence and malignancy, from the mildest form of synochus, or inflammatory fever, to the most virulent character of typhus; hence the circumstances already noticed in relation to those fevers must be regarded in the treatment of this. Generally, the head requires the very free application of the coldest wet cloths, or the pouring head-bath; and very frequently the feet are coo or cold, and require the

warm bath. In the early stages of most cases, two or three wet-sheet packs a day are desirable; but when the fever is strongly typhoid, the pulse weak, the circulation low, and the heat irregular, it is better to sponge the whole surface frequently with tepid water. Tepid injections should be employed freely on the access of the disease, but not resorted to during the eruptive stage, on the second or third day, unless there is manifest fullness and distension, indicative of fœcal accumulations in the bowels.

Dr. Johnson advises, in this disease, the wet sheet occasionally, and a nitrate of silver wash, or a coating of flour to the skin, a dose of castor oil, and then quinine and sulphuric acid once in six hours. Such treatment is sufficiently absurd, coming, as it does, from the author of a book on "Domestic Hydropathy;" but the absurd becomes the ridiculous when we come to Dr. Johnson's dietary part of the treatment, viz.: Strong beef-broth, thickened with pearl barley; yolk of eggs beaten up with milk, and a little wine and nutmeg added; sago, with a little wine in it; cold beef-tea, or cold mutton-broth, as common drink."

The only way to reconcile Dr. Johnson's *extreme* allopathic treatment of *this* fever, with his extravagant encomiums of the superior efficacy of water-treatment in *all* fevers, in a preceding work, is by supposing he never had any experience in treating erysipelas with water; and hence, as something must be prescribed, he naturally falls back on druggery. His reasons for introducing the drug-treatment here are completely self-stultifying. He says: "The weight of experience is in favor of quinine, and I should not consider myself justifiable in rejecting its aid, merely to gratify the pride of an exclusive practice. * * * Human life is too precious a thing to be trifled with merely to satisfy an impertinent whim, or foolish enthusiasm."

Now, if the principle implied in the above quotation is correct—if it be true that drug-treatment will save life in a fever where water-treatment would sacrifice it, the whole hydropathic system is one grand mistake, and its practice mere charlatanry. But if the exact contrary be the truth, as I hold, then Dr. Johnson's druggery, in scarlet fever and erysipelas, is considerably worse than scientific nonsense. American water-doctors find the new system as all-sufficient in these as in all other forms of fever. None of them, however, to my knowledge, have ever administered the execrable slop-grog food, of eggs, wine, nutmeg, mutton-water, etc. I would rather trust the patient with no medication whatever, than with the best water or drug-treatment, in connection with such a regimen as Dr. Johnson recommends.

Miliary Fever—Miliaria.—This disease takes its name from the

resemblance of its vesicles to the grains of millet. Some authors group a variety of similar rash-exanthems under the general term of miliaria. An eruption similar to that of miliary fever often appears in the course of other acute diseases, when the patients have been kept in hot, unventilated apartments, or dosed excessively with hot stimulating drinks. Lying-in women are peculiarly liable to this miliary eruption, under the usual erroneous management of their medical advisers. This fever occurs most frequently in those females who use tea excessively; it often attacks children who have been accustomed to hot drinks and aliments; and old persons whose blood is inflamed, and whose nerves are exhausted by acrid stimulants and narcotics—as cider, tobacco, etc.—are quite liable to it.

Symptoms.—With the ordinary accessory symptoms of fever, there is laborious breathing, frequent sighing, great debility, depression of spirits, restlessness, wandering pains, followed sooner or later by a profuse sweat, of a sour, rank odor, accompanied with a troublesome itching or pricking of the skin. The sweat may appear in *two*, *three*, *four*, *five*, or *six* days. At length, at an uncertain period, an eruption appears on the neck and breast of small red papulæ, about the size of millet-seeds. these gradually extend downward, over the trunk and extremities. The pimples do not become prominent to the eye, yet feel elevated to the touch. Often their redness disappears, leaving them of the color of the skin. After *ten* or *twelve* hours, a small vesicle appears upon the top of each papula, at first of a whey color, usually turning gradually white. Sometimes the vesicles remain red, and sometimes red and white vesicles are intermixed, but always have a strong, rank, offensive smell. In *two* or *three* days more the vesicles break, and are succeeded by small crusts, which soon fall off in scales. The febrile symptoms do not subside when the eruption appears, but after a variable interval.

Diagnosis.—Miliary fever is easily distinguished from all others by the profuse sweating attended with the fetid odor, and this being followed by the peculiar eruption.

Peculiarities of Treatment.—As miliary fever is attended with unusual debility in its early stages, cool or tepid applications are preferable to very cold. Hot or cold local applications, according to the rules often heretofore adverted to, with frequent sponging of the whole surface, according to the degree of general heat, are usually all the bathing appliances required. Unless there is diarrhea, the bowels should be freely moved by tepid injections at the outset. Local pains should be promptly treated with the cooling or warming wet compress, as either feels most agreeable to the patient When this fever has

been produced by the suppression of any customary discharge, warm hip and warm foot-baths are serviceable.

Note.—Some authors treat of "*gastric*," "*mucous*," and "*catarrhal*" fevers. These are merely complications of some of the forms of fever already described, with prominent symptoms of indigestion, or an increased and excessive secretion of a slimy or mucous matter, from acrid bile or some other irritant, or the usual evidences of what is called a "cold in the head." Sometimes these local irritations are attended with such a degree of constitutional febrile disturbance as to receive the above appellations.

Plague—Typhus Pestis.—The plague was first known in English history in 430, and lastly in 1679. In 302 it raged over Syria. In 540, and for half a century afterward, it prevailed extensively over Europe and Asia. Since 1645, when it last visited Edinburgh, it has repeatedly ravaged all the continent of Europe. Marseilles was ravaged by it in 1720, and in the course of the seventeen preceding centuries, it experienced twenty-seven visitations. It prevailed at Moscow in 1771 and 1772; at Noja, in 1815 and 1816; in the lazaretto of Venice in 1818; at Malta, in 1813; and at Gressemberg, in Silesia, in 1819. Lately it has been confined to the northern parts of Africa, where it is reputed to have originated.

The history of the plague, like that of the cholera, is a tremendous lesson, whose true moral is hygiene, unfortunately, however, but little understood, and still less heeded. Wherever and whenever it has raged, the place and the people were buried, as it were, in their own filthiness, and rioting in the grossest sensuality. The narrow streets, dirty houses, unventilated apartments, and gross food of the inhabitants, with drunkenness and debauchery, have ever been the *inviting* causes of this pestilence in all the cities of the Old World where it has ravaged and desolated. Athens, Rome, London, which were formerly more than at present, the world's great centers of luxury and licentiousness, have been repeatedly scourged with this prince of pestilences. Since the habits of the civilized world have become more cleanly, yet more debilitating, we have internal dyspepsias instead of external carbuncles, and the cholera instead of the plague.

The character of the plague is that of a malignant exanthem; a typhus fever of the putrid form, attended with carbuncular and imperfectly suppurating tumors, sometimes running into deep gangrenous ulcers, the patient often feeling as if burning up with internal fire. The treatment, on hydropathic principles, should be the same as for the putrid form of typhus fever.

CHAPTER II.

VISCERAL INFLAMMATION.

In this chapter, I purpose to treat only of *acute* inflammatory affections of the viscera. They are all characterized by a fixed pain or soreness, and sense of heat in the organ diseased, with a change in its secretory or functional action, and attended by a constitutional febrile disturbance. The accompanying fever may be either of the inflammatory or typhoid type. A visceral inflammation may be defined a general fever with a disproportionate local affection. This class of diseases is almost universally treated by allopathic physicians on the *antiphlogistic* plan—bleeding, salts, antimony, and a *reducing* regimen.

The group of diseases naturally associated under this head comprises the following species:

1.	Inflammation of the Brain	Phrenitis.
2.	"	Pharynx ..... Quinsy.
3.	"	Larynx ..... Laryngitis.
4.	"	Trachea ..... Croup.
5.	"	Parotid gland .. Mumps.
6.	"	Lungs ..... Pneumonia.
7.	"	Heart ..... Carditis.
8.	"	Stomach ..... Gastritis.
9.	"	Bowels ..... Enteritis.
10.	"	Peritoneum ... Peritonitis.
11.	"	Liver ..... Hepatitis.
12.	"	Spleen ..... Splenitis.
13.	"	Kidneys ..... Nephitis.
14.	"	Bladder ..... Cystitis.
15.	"	Uterus ..... Hysteritis.
16.	"	Testes ..... Orchitis.

It is true that *otitis* (acute inflammation of the ear), *ophthalmitis* (acute inflammation of the eye), and *dysentery* (an acute inflammation of the mucous membrane of the bowels), belong pathologically to this group; but each possesses so many peculiarities, that system may be advantageously sacrificed to convenience; hence they will be treated of in subsequent chapters.

Theory of Inflammation.—Next to fever the subject of inflam-

mation has occupied the attention and exercised the ingenuity of medical scholars. But still we have no satisfactory explanation of the proximate cause of its various phenomena. Two theories are, at the present time, about equally prevalent in medical schools, one of which is, singularly enough, the exact opposite of the other. But, stranger still, some of our popular medical authors who are diametrically opposed to each other in theory agree exactly in practice; while others who agree exactly in theory are diametrically opposed in practice. These facts alone are sufficient to prove the whole pretended science of the popular system a mere hypothesis, and the whole drug-practice a mere experiment.

To illustrate: one theory of inflammation is, that it consists essentially in an *increased action* of the capillary vessels of that part which is the seat of it; and the other is, that it consists in a *diminished action* of the same vessels. Now, it would seem that these theories are distinctive enough to authorize opposite plans of treatment. But it does not so happen. Medical reasoning is a process *sui generis*. The most contradictory conclusions are often drawn from the same premises, and the same conclusion is often deduced from the most opposite premises. All medical books extant of the allopathic school "agree to disagree" in this. They all recommend *both* stimulating and reducing treatment for all forms of inflammation, whichever theory they adopt. If a person has inflammation of the head, lungs, liver, joints, etc., with a full, *strong*, hard pulse, they say, "*bleed*, because it reduces the strength of the system, and abates the force of arterial action." If another has inflammation of the same parts, with a *weak*, frequent, oppressed pulse, they still say, "*bleed*, because it *strengthens* the vessels by taking off a part of the load they have to carry." So, whether the action is high or low, strong or weak, bleeding is the remedy. The theory and the practice have really nothing to do with each other on the depleting plan. Nor is there a better connection between theory and practice on the stimulating plan. In many forms of gout and rheumatism, in dysenteric inflammation, in burns and scalds, etc., stimulants are recommended by many authors, as cayenne, opium, oil turpentine, camphor, brandy, nitrate of silver, spirits of nitre, mustard, etc. Why? "Because," say the theorists on the side of increased action, "the action of the capillaries has been preternaturally augmented, and we must let the action down gradually, by applying stimulants of a less intensity than the proximate causes of the diseased action;" and on the other hand, the theorists on the side of decreased action say, "give stimulants, because the action of the capillaries has been preternaturally diminished, and thus excite them to greater ac-

tion." Such is the confusion in which the whole subject of inflammation is involved—a confusion which, to my mind, is conclusive that both theories, and all the practices predicated upon them, are radically erroneous.

Rationale of Inflammation.—Experiments have amply demonstrated the fact, that the vessels in an inflamed part are distended with blood beyond their normal condition, and that the blood in them moves slower than in health. As far, then, as increased or diminished action is concerned, the latter theory seems plausible; and all the conflicting methods of medication appear to aim at producing, directly or indirectly, one single effect, viz., contraction of the coats of the over-distended vessels. For this purpose the most opposite agents and processes are resorted to; the blood taken out, or brandy administered, hot fomentations employed or ice applied, refrigerating nitre or scorching capsicum exhibited.

There is, undoubtedly, in the early stage of inflammation, an increased contractile effort of the capillaries, but accumulation and engorgement with relaxation soon become their permanent condition. This temporarily increased action cannot, therefore, be regarded as the proximate cause of inflammation, but as the effort of nature to overcome its cause or counteract the effects.

Inflammation, as well as fever, is the effort of the vital powers to protect the organism from injurious mechanical, chemical, or vital irritants, or to expel morbific materials. This is proved by the phenomena of a multitude of morbid conditions. When a part of the body becomes gangrenous or dead, the living parts, provided there is sufficient vitality remaining in them, immediately form a line of demarkation, and the dead portion is soon separated from the living; this process is called *sloughing*. When a chemical or mechanical body is imbedded in the flesh too firmly to be removed by absorption, as a bullet or a splinter, purulent matter is formed around it, and its further action on the parts is partially or wholly prevented by inclosing it in an abscess. When a grain of calomel gets into the lacteal vessels, the mesenteric glands, which may be regarded as organic inspection offices, receive an increased determination of blood, swell up, or inflame, and thus retard the contraband article, until it can be more or less modified or destroyed by the vital powers. When a structure is divided, as by an incised wound, coagulable lymph is poured into the wound, forming, as it were, a bed for the newly-formed vessels to re-unite the part —a process called *adhesive inflammation*. And when a portion of the flesh is torn away by violence, or decomposed by corrosives, or burned

out with fire, a covering of purulent matter is thrown over the exposed surface, beneath which granulations—a new growth of substance—gradually fill up the cavity; this process is called in medical books *healthful* or *restorative inflammation*.

Varieties of Inflammation.—Various circumstances conspire to modify inflammatory affections so much as to allow of their division into several well-marked and distinctive kinds. Peculiarity of constitution, the structure of the part or organ, the nature and violence of the predisposing and exciting causes, are the most prominent of these circumstances. Inflammation tending to suppuration in a defined limit, as in the case of boils, abscesses, etc., is called *phlegmonous*. That form which is attended with eruptions, efflorescences, rashes, extensive ulcerations, rapidly-spreading gangrene, etc., is called *erysipelatous*, or erythematous. When it tends to the formation of a preternatural membrane over the mucous surface, as in croup, tubular diarrhea, catarrh of the bladder, catarrh of the uterus, etc., it is called *membranous*, or *membranific*. When it affects mainly the glandular structures and mucous or serous membranes, without febrile symptoms in the early stages, as in tubercular consumption, internal dropsy of the head, and swellings of the conglobate glands, it is called *strumous*, or *scrofulous*. When confined mostly to the structures of the joints, as in gout and rheumatism, it is called *arthritic*.

Inflammation is also divided into *acute*, *subacute*, and *chronic*. The first is attended with general fever; the second is accompanied with occasional febrile paroxysms; the last is without constitutional febrile disturbance.

Terminations of Inflammation.—All inflammatory affections terminate either in *resolution*—a gradual subsidence of all the symptoms; or in *gangrene*—the death of the inflamed part. But there are many results or consequences of inflammation which are usually called terminations by medical authors. These are *exudation* or *effusion*, *suppuration*, *ulceration*, *induration*, and *adhesion*.

General Treatment of Inflammation.—The hydropathic management of a visceral or local inflammation is precisely the same as that of a general fever, with the addition of the local appliances. The heat, pain, swelling, and all incidental accompaniments, are to be treated exactly as we would treat the same symptoms when present as complications of a simple fever. The regimen is also, in all respects, the same as for simple fevers.

Inflammation of the Brain—Phrenitis—Brain Fever.—This disease is also sometimes called *phrensy*. Some authors distinguish it into two forms—*encephalites*, when it affects principally the substance of the brain; and *meningitis*, when it affects principally its investing membranes; but as the disease, whichever structure is primarily affected, soon involves both, and as the treatment is in all respects the same, according to the violence of the symptoms, this distinction has no practical utility.

Symptoms.—Acute or excruciating pain in the head, throbbing of the temporal and carotid arteries, flushed face, eyes injected and brilliantly reddish, contracted pupil, and a wild expression of countenance, characterize the disease when fully formed. These symptoms are preceded by various cerebral and febrile disturbances, sometimes violent delirium, at other times nausea and vomiting, or general convulsions. The bowels are usually extremely costive. There is also great intolerance of light and sound, incessant watchfulness, the skin is dry and hot, the pulse hard and quick, the tongue is dry and covered with a white fur, and there is intense thirst.

Special Causes.—Exposing the head to a hot vertical sun, violent exercise, intense study, excessive passion, external violence, metastatic gout or rheumatism, and repelled eruptions, are among the most frequent of the exciting causes.

Diagnosis.—Inflammation of the brain resembles, in many prominent symptoms, several other complaints, from which it is indispensable to distinguish it. From *mania*, it is known by the accompanying fever; from the *delirium of inflammatory fever*, by the delirium in the latter case succeeding instead of preceding the febrile symptoms; from the *delirium of typhus*, by the suddenness of its attack; from the cerebral irritation or determination to the brain arising from the *effects of loss of blood*, by the pallor of the skin and countenance in the latter case; and from *delirium tremens*, by the pallor of the surface and general tremor of the body and limbs which denote the latter.

Peculiarities of Treatment.—In most cases, inflammation of the brain is attended with synochus, or *high fever*, and requires thorough general and local cold treatment. The immersion-bath is excellent; or the patient may be enveloped in double or treble wet sheets, while the head is cooled with pounded ice, cold cloths, or the pouring-bath. The extremities must be carefully watched, and if the feet are not hot, like the rest of the body, they should be bathed in warm water. The constipated state of the bowels, of course, requires copious tepid injections. In some cases where the whole scalp feels excessively sore and tender, cold water feels disagreeable, and then tepid water is more

soothing, and, by more rapid evaporation, will cool the head as effectually as the cold water will in other cases. If a single sheet is employed for packing, it wil require to be renewed several times a day.

Inflammation of the Throat—Quinsy.—Under this head are included four distinct forms of inflammation of the throat, all of which are characterized by heat, redness, and swelling of the fauces, with painful and difficult deglutition.

Symptoms.—The first form of the disease under consideration is the *common quinsy*, or *tonsillitis* of authors, called also *cynanche* or *angina* in medical books. It consists of a swelling of the mucous membrane of the fauces and tonsils, by which the functions of swallowing, respiration, and speech are performed with great pain and difficulty; the accompanying fever is violent, and the disease terminates in a few days by resolution or suppuration. The second form is known as the *malignant*, or *ulcerated sore throat.* The attending fever is typhoid; the fauces exhibit a crimson flush, with ulcerations covered with mucus, and spreading sloughs, of an ash or whitish hue. This form is frequently epidemic. In the third variety, the redness is more florid, and is most violent at the lower part of the fauces; the swallowing is extremely painful and difficult. The fourth variety has been called *quinsy of the œsophagus;* the difficulty in swallowing is felt below the pharynx, and the food is generally rejected when it reaches the seat of obstruction.

Special Causes.—All of these forms of throat disease are most common in spring and fall, which fact shows that sudden changes of weather, or "taking cold," are their principal exciting causes.

Peculiarities of Treatment.—The wet compress, consisting of several folds of linen wet in cold water, must be promptly applied around the throat, and frequently renewed. The whole body must be well rubbed in the dripping sheet, or tepid half-bath, and then wrapped in the dry blanket, so as to produce moderate perspiration; or the general fever may be treated with the wet-sheet pack. In the malignant form, small draughts of iced-water should be frequently taken, and the coldest water, or pounded ice, applied to the throat whenever the morbid heat is troublesome.

Inflammation of the Larynx—Laryngitis.—This disease, in some of its symptoms, resembles quinsy, and in a still greater number, the croup. It consists in a suppurative inflammation of the membranes of the larynx, extending backward to the membrane common to itself and the œsophagus, between which purulent matter is often formed

It is a disputed point whether Washington, in his last illness, was attacked with this disease or common quinsy; but it is certain that he died of antimony and the lancet!

Symptoms.—After the ordinary symptoms of fever, the voice becomes hoarse and indistinct; the breathing laborious, with a painful sense of constriction in the throat; the fauces are swelled and turgid, the swelling extending to the face and eyes, the latter sometimes protruding as in cases of strangling; the pulse is frequent, the tongue furred, and every attempt to swallow is attended with great distress, the muscles of deglutition being thrown into violent spasms, threatening the patient with instant death from suffocation.

Diagnosis.—It is distinguished from *croup* by the existence of a constant and voluntary hawking, rather than a forcible and involuntary cough; and from *common quinsy* by the absence of any considerable swelling of the tonsils.

Peculiarities of Treatment.—There is no material difference in the therapeutic management required for this and the preceding malady, except that indicated by the danger of immediate suffocation. Ice-water gargles should be freely employed, in conjunction with cold wet cloths to the throat, and the general tepid-bath, or wet sheet; and if the extreme sense of suffocation is not relieved in a few hours, the patient should be put into a full hot-bath for ten or fifteen minutes: if, however, this is impracticable, the hot fomentations to the abdomen should be resorted to occasionally, in connection with the general and local treatment already mentioned.

Inflammation of the Trachea—Tracheitis—Cynanche Trachealis—Bronchlemmitis—The Croup.—This disease consists of a peculiar inflammation of the mucous membrane of the trachea, or windpipe, attended with a thick, tenacious, glairy secretion, which hardens, if the disease is not soon arrested, into a preternatural membrane, and produces death by closing up the air-passage in the larynx. In some few instances, however, it has been expectorated. A similar membrane is also sometimes formed in the bowels, bladder, or uterus, and cast off in the form of a tube, or of fragments resembling, and sometimes mistaken for portions of the mucous membrane.

Symptoms.—The *first stage* is denoted by a ringing cough, to which many children are subject on taking cold, attended with little or no change in the breathing or voice. This may be called the premonitory stage. In the *second stage* there is a shrill, ringing cough, with difficult breathing; the voice is altered, hoarse, and broken; the breathing is sometimes hissing, and at other times creaking or crowing; the eyes

are heavy, watery, and bloodshot, and many patients die before the disease progresses further. In the *third stage* the cough and voice are stridulous, the respiration is laborious and suffocative, and the case is generally regarded as hopeless. The cheeks, eyes, and nails manifest a purple redness; the complexion is often mottled, or the flush of the cheek is circumscribed; the pulse is very small and frequent. In the *fourth stage* the voice is whispering and low; the cough less frequent, and scarcely audible across the room; the trachea is coated with effusion; the face is leaden, the eye filmy, and the extremities cold, and final insensibility is gradually closing the scene.

Special Causes.—The croup most frequently attacks children between the ages of one year and twelve, though occasionally it occurs in infants at the breast; and very rarely in adults. Sudden alternations of temperature, especially going from a heated, ill-ventilated apartment to a humid atmosphere, or *vice versa*, with little or no attention to bathing habits, are among the prominent circumstances which co-operate to produce this disease.

Peculiarities of Treatment.—As the danger from this disease consists in the effusion which concretes into the artificial membrane, the treatment should contemplate the arresting of this secretion at the earliest possible moment. The whole throat must be instantly enveloped in several folds of *very cold* wet cloths, and these should be very frequently changed until the respiration becomes free. If the fever is not very high, the whole body should be bathed in tepid water at about 70°, and then packed in the dry blanket, until the heat returns, or perspiration takes place. If the general fever and heat of the surface are considerable, the wet-sheet pack is the best, to be renewed occasionally, and managed in all respects as for a common fever. Attention to the bowels, cold extremities, irregular temperature, etc., is required, as in all febrile and inflammatory complaints.

When called to a patient, after the partial or complete consolidation of the tenacious secretion, evinced by extremely painful and suffocative breathing, and constant but unavailing efforts to expectorate, warm water should be copiously drank, and the throat tickled with the finger or a feather, so as to provoke moderate vomiting. Nearly every case of croup can be cured by a prompt recourse to these measures on the first attack. But all treatment may fail in the third and fourth stages of the disease. The preternatural membrane has, in a few instances, been expectorated in fragments, and the patient recovered; but usually its formation is fatal.

Inflammation of the Parotid Gland—Parotitis—Mumps.—

The mumps consist of a painful, unsuppurative swelling of one or both parotid glands; it is contagious, and often epidemic; it is often accompanied with swelling of the testes in males, and of the breasts in females.

Symptoms.—The tumor is at first movable, but soon becomes diffused to a considerable extent; it increases till the fourth day, and often involves the maxillary glands in the inflammation. It is attended with but slight febrile disturbance, and gradually declines after the fourth day.

Peculiarities of Treatment.—Very little medication is required in ordinary cases. Abstemious diet, the wet sheet whenever the whole surface is affected with feverish heat, and the application of a wet linen cloth, covered with a dry one, to the inflamed part, whenever this is very hot or painful, constitute the remedial plan. Whenever metastasis occurs to the testes or breasts, the full warm-bath should be employed, succeeded by wet compresses to the part affected, well covered, so as to produce the fomentation or poultice effect.

Inflammation of the Lungs—Pneumonia—Pneumonitis—Peripneumony—Lung Fever—Pleurisy.—All of these terms have been employed to designate the same essential disease, which is an acute inflammatory condition of some part or all of the substance of the lungs, or of their surrounding membranes, or of both. Medical authors apply the term *pleurisy* to the disease when it primarily attacks the pleura; and the term *pneumonia*, or *pneumonitis*, when the primary attack appears to be in the parenchyma, or substance of either or both lungs. The term *peripneumonia notha*, or *bastard pneumonia*, has been given to a modification of the disease, attended with a low, typhoid fever of the nervous type, which has sometimes prevailed as an epidemic. Practically, all these distinctions are useless; for whether the inflammation first affects the investing membranes or the substance of the lungs, it soon involves both; and precisely the same treatment is indicated whether we call it one or the other of these technical names.

Symptoms.—Sometimes the constitutional symptoms appear first, as rigors, flushed, purplish face, injected appearance of the eyes, furred tongue, etc., and sometimes the local symptoms precede; these are great heat and sense of weight about the chest; dull, deep-seated, or acute pain; short and dry cough, with a slight mucous expectoration; frequent, short, and anxious respiration. In a day or two the expectoration becomes viscid, and more or less rusty-colored, yellow, or bloody. The pulse is full, strong, and quick, or small, weak, and frequent, as the fever approximates the inflammatory or typhoid type. Dr. Shew,

in his Manual, mentions "no pulse" as among the symptoms, but this is most assuredly a mistake.

Terminations.—This disease terminates by *resolution*, *suppuration*, *gangrene*, *effusion*, or *hemorrhage*. Under thorough water-treatment from the outset, it has always, within the scope of my experience and observation, terminated very promptly by resolution.

Special Causes.—Extreme vicissitudes of temperature, unequal exposure of the body, cold or wet feet, exposure to wet or cold when the body is in a state of exhaustion from sleeplessness or over-exertion, are especially conducive to this disease.

Peculiarities of Treatment.—If the general febrile symptoms precede the local, the wet sheet is to be resorted to, and repeated according to the degree of superficial heat. When the local pain, cough, difficulty of breathing, etc., appear, the chest-wrapper should be constantly worn, covered with a dry cloth, and renewed five or six times a day. The shallow tepid-bath, or if this is impracticable, the tepid sitz-bath, should be employed once or twice in twenty-four hours. When the heat is unequally developed, the pulse low, the patient extremely prostrated, and the extremities pale or cold, the warm sitz and foot-bath are serviceable. Free tepid injections are generally advisable; and when the expectoration is painfully sticky and scanty, warm water-drinking, to the point of slight nausea, or even moderate vomiting, will afford speedy relief.

Inflammation of the Heart—Carditis.—Whether the muscular substance of the heart is ever the seat of an inflammatory affection which is capable of distinct recognition, is a disputed point. But inflammation of its investing membranes, though a rare disease, is recognized in all standard works; as *pericarditis*—inflammation of the heart-purse, or pericardium; *endocarditis*—inflammation of the internal membrane which lines the cavities of the heart. For all practical purposes, they may all be considered as simply inflammation of the heart.

Symptoms.—With general febrile disturbance there is more or less acute pain under the left nipple, toward the lower extremity of the breast-bone; this pain radiates toward the left armpit, and sometimes extends downward to the elbow or wrist; the pain is increased by pressing upward against the diaphragm, and by lying on either side. The pulse may be full, hard, regular, and jarring, or small, rapid, unequal, and intermitting; there is great difficulty of breathing, an insupportable sense of oppression, frequent sweats, often alternated with very dry and hot skin. The countenance is pale, sharp, and marked

with great anxiety and terror; sighing, sobbing, and hiccough are frequent, and sometimes delirium, convulsions, or insomnolence attend.

Special Causes.—Among the predisposing causes of this affection Hooper mentions, "the male sex, and the age from ten to thirty." If he had said that males between the ages of ten and thirty are most subject to the disease, his talk would have been rational; but to put down such circumstances as *causes* is flat nonsense. The most common cause of heart diseases is the allopathic treatment, *alias* maltreatment of gout and rheumatism, which produces a metastasis of arthritic inflammation from the membranes of the joints to those of the heart.

Peculiarities of Treatment.—The hydropathic management is precisely the same as for inflammation of the lungs.

Inflammation of the Liver—Hepatitis.—Acute inflammation of the liver is, in this climate, a rare disease; but is rather frequent in hot countries, especially with those who indulge freely in flesh-eating and spirit-drinking.

Symptoms.—Pain in the right side under the short ribs, increased by a full inspiration, or by lying on the left side; dry, husky cough, shortness of breath, shooting pains about the chest, sympathetic pain in the right shoulder, yellow appearance of the white of the eye, and sometimes yellow skin; the urine is high-colored, and there is either costiveness or diarrhea.

Chronic inflammation of the liver—*hepatitis chronica* of the books—often manifests some degree of most of the symptoms above-mentioned, but is distinguished by the absence of general fever.

Peculiarities of Treatment.—Apply the wet girdle around the upper part of the abdomen, over the seat of the principal pain; in all other respects manage as in the case of inflamed lungs. The bowels should be thoroughly cleansed in the outset with warm water enemata.

Inflammation of the Spleen—Splenitis.—This is an exceedingly rare disease. It is known by severe pain in the left side opposite the liver, with a sense of heat and weight, and considerable fullness and tenderness; the pain is increased on pressure. The treatment is the same as for inflamed liver.

Inflammation of the Stomach—Gastritis.—Dr. Good distinguishes acute inflammation of the stomach into two forms, *adhesive* and *erythematic*. In the former variety the fever is high, or inflammatory; in the latter, low, or typhoid.

Symptoms.—With general fever there is severe fixed pain and burning heat at the pit of the stomach; painful deglutition; the pain is increased by pressure over the stomach; frequent vomiting, hiccough, sudden and extreme prostration; hard, wiry, rapid, and often irregular and intermitting pulse; intense thirst; restlessness and anxiety; tongue red, parched, and of a glazed appearance. Frequently the inflammation extends to the bowels, attended with diarrhea and great tenderness of the abdomen, constituting the *gastro-enteritis* of authors.

Special Causes.—In a majority of cases gastritis is the effect of powerful irritants or chemical poisons taken into the stomach. It is sometimes produced by drinking largely of very cold water when the body is excessively heated by exercise, especially in persons whose stomachs are enervated by spirituous liquors. Unripe fruits, decayed vegetables, and putrid animal food, sometimes excite it.

Peculiarities of Treatment.—Apply wet cloths freely to the whole abdomen, of the temperature which feels most agreeable and soothing to the patient. Generally quite cold water answers the best. Small quantities of ice or iced-water may be frequently taken. Drink *ad libitum* of water of a moderate temperature—60° to 70°. Tepid injections are generally necessary; when diarrhea attends they may be used cold. The entire wet sheet envelopment should be employed two or three times a day when the febrile heat is general and excessive.

Inflammation of the Bowels—Enteritis.—This disease, like gastritis, is divided into the *adhesive* and *erythematic* varieties, by Dr. Good. The former variety is attended with obstinate constipation; the latter with diarrhea.

Symptoms.—With more or less of general fever there is acute pain in some part of the abdomen, gradually extending over the whole; the pain is increased by pressure, and accompanied with tension and swelling. The patient lies on the back with the knees drawn up, and can scarcely suffer the weight of the bed-clothes. The bowels are usually obstinately constipated, but sometimes diarrhea attends; and there is constant nausea, and more or less vomiting of bilious and sometimes of highly offensive fœcal matter. The pulse is frequent, hard, and contracted.

Special Causes.—Long-retained and hardened fœces; constipating food; irritant poisons; impure aliments.

Diagnosis.—Enteritis is distinguished from *colic* by the presence of fever. In colic the pain is diminished by pressure.

Peculiarities of Treatment.—The constipated state of the bowels requires the free employment of copious tepid injections; in all other

respects the treatment is the same as for gastritis. It is not advisable, however, to resort to the injections until the heat and tenderness of the abdomen has been somewhat reduced by the external applications. When severe diarrhea occurs, the warm sitz-bath and cool injections may be occasionally employed to advantage.

Inflammation of the Peritoneum—Peritonitis.—Authors distinguish three varieties of acute peritoneal inflammation: *peritonitis proper*, when the lining serous membrane of the abdomen is generally affected; *omentalis*, when the omentum is the principal seat of disease; and *mesenterica*, when the inflammation affects principally that portion called the mesentery.

Symptoms.—The usual accessory symptoms of general fever are succeeded by a sense of heat and pain in the abdomen, usually confined to one part, but gradually becoming diffused. There is great tenderness or soreness of the belly, without inclination to go to stool, and a considerable degree of tension and swelling comes on, which ordinarily increases for several days; the patient finding most relief when lying motionless on the back, with the knees somewhat elevated. The tongue is not much altered at first; the pulse is small, weak, and very frequent. This disease frequently attends as a symptom of puerperal fever, which fever is generally the result of bad management during the period of childbirth.

Diagnosis.—It is distinguished from colic by the pain being increased on pressure, and frequency of the pulse. It is not so easily distinguished from enteritis; but this is of no consequence, as the treatment is in all respects precisely the same.

Inflammation of the Kidney—Nephritis.—*Symptoms.*—General fever, pain in the region of the kidney, extending to the groin and along the ureter to the neck of the bladder. The pain is deep-seated, often dull and obscure, but always increased by the erect posture, by coughing or sneezing, or by firm pressure. It is also increased by straightening the leg of the affected side. To avoid this the patient instinctively reclines on the affected side, and bends the limb so as to relax the muscles of the groin. There is frequent desire to urinate, with great difficulty or inability to expel the contents of the bladder. The urine is generally bloody at first. The tongue is white, the pulse is hard and frequent, the bowels are constipated, the abdomen is tympanitic, with wandering pains, and the patient labors under great depression of spirits.

Special Causes.—Acrid diuretics, hard water, gravel, violent exercise of the muscles of the back, hardened fœces in the colon.

Diagnosis.—It may be distinguished from *lumbago* by the pain following the course of the ureter, and by the difficulty of urination.

Peculiarities of Treatment.—If the fever is not violent, and the heat of the surface is irregular, the warm hip-bath will alleviate the pain. If the heat of the surface is great and uniform, the cold hip-bath will produce the greatest relief. One or the other should be frequently employed, with general and topical treatment, as in other visceral inflammations.

Inflammation of the Bladder—Cystitis.—Idiopathic inflammation of the bladder does not often occur. It does, however, sometimes result from the common causes of inflammation, but is more frequently the consequence of gravel, stone, long retention of urine, maltreated gonorrhea, and such drug-irritants as cantharides, ardent spirits, turpentine, and various essences and balsams.

Symptoms.—General fever; acute pain, swelling, and tension in the region of the bladder; pain and soreness increased by pressure above the pubes, or in the perineum; vomiting; tenesmus; frequent micturition, with great difficulty in discharging the urine; heat and smarting in the urethra; great general irritation, restlessness, and anxiety.

Peculiarities of Treatment.—On account of the structure of the urethral passage, the warm hip-bath should be at first employed for half an hour, or until sensible relief is experienced. This should be succeeded by the cold compress, which should be worn constantly and very frequently renewed, occasionally alternating with the warm hip-bath. The febrile symptoms are to be treated with the wet-sheet pack, followed by the dripping sheet or tepid half bath, as often and whenever they are indicated by the general heat. The vomiting may be relieved by warm water-drinking, followed by sips of cold water or bits of ice. The tenesmus requires copious injections of warm water, followed, after the bowels have acted freely, by the injection of as much cold water as the bowels can conveniently receive. The warm foot-bath is useful when there is the least tendency to cold extremities.

Inflammation of the Uterus—Hysteritis—Metritis.—This disease has been divided into two varieties—*simple*, when occurring in the unimpregnated organ; and *puerperal*, when attacking the womb soon after delivery.

Symptoms.—Nearly every symptom characterizing inflammation of the bladder attends also inflammation of the uterus; in the disease under consideration there are the additional symptoms of pain extending with great severity to the loins, and shooting down the thighs, and an

increase of pain in the hypogastric region on the patient's making a deep inspiration. There is also a sense of weight and bearing down, with a frequent, small, and wiry pulse.

Special Causes.—Suppressed menstruation, extraordinary mental emotion, astringent or irritating injections.

Peculiarities of Treatment.—The treatment for the preceding disease is equally applicable to this.

Inflammation of the Testes—Orchitis.—This affection is readily known by the pain, heat, redness, and swelling of the part affected; it is attended with more or less general fever. It only requires the constant application of water, either by compresses or the hip-bath, of such temperature as is most soothing to the pain; and the wet-sheet pack or tepid full-bath, according to the degree of general heat.

CHAPTER III.

ARTHRITIS.

Arthritic inflammation comprehends the various forms of gout and rheumatism. The peculiarity of this kind of inflammation consists in its being confined mainly to the fibrous tissues—the muscles, and structures around the joints. Its character is also erratic, often shifting its seat of morbid action from slight causes. The diseases included under the present head may be grouped as in the following arrangement:

Gout.	Regular,	Rheumatism.	Inflammatory,
	Atonic,		Articular,
	Recedent,		Lumbago,
	Misplaced.		Sciatica,
			Muscular,
			Chronic.

Gout—Podagra.—Dr. Good tells us *(Study of Medicine)* "that the predisposing cause of a gouty diathesis, when it first forms itself in an individual, is plethora, or the state of the system produced by full living and indolence." Strangely inconsistent with this remark the same author observes: "There is no disease to which the human frame is subject that has led to such a *variety of opinions* both in the-

ory and practice, many of them *directly contradictory* to each other, as the gout; and I may add, there is no disease concerning the *nature* and *treatment* of which physicians are so little agreed." Nothing can be more conclusive of the absurdity of the whole philosophy of the popular system, and the empiricism of its whole practice, than this general agreement about the producing cause of a disease, and this general disagreement about its nature and treatment!

Symptoms.—*Regular* gout is characterized by a violent inflammation and swelling of the joints, enduring for several days, and gradually subsiding with itching and desquamation of the cuticle. It usually comes on an hour or two after midnight, with excruciating pain in the joints of the great toe, which grows worse as the day advances, gradually ceasing toward evening, to return with more or less violence the next morning; and so on for several days. The attack is preceded by various symptoms of digestive derangement, and with coldness, numbness, and cramps of the extremities. The *atonic* or *disguised* form is attended with greater general debility and worse dyspeptic symptoms, while the affection of the joints is but slightly painful and inflammatory. The local affection often alternates with the symptoms of indigestion, when pain in the stomach, nausea, vomiting, eructations, etc., occur, and the patient is dejected and hypochondriac. Cramps in the trunk and extremities are common, and there may be either obstinate costiveness or diarrhea. Sometimes the affection of the joints alternates with a disturbance of the viscera of the chest, producing palpitation, syncope, or asthma; at other times with the head, which is affected with vertigo, cephalalgia, and sometimes even with palsy or apoplexy. The *recedent* or *retrograde* form is marked by a sudden subsidence of the inflammatory state of the joints, succeeded immediately by an affection of some internal part, where is thenceforth the seat of the morbid manifestations. The head, heart, or lungs may be affected, producing the results named in the preceding remark. The *misplaced* variety is denoted by an inflammatory affection of some internal part or organ in a gouty diathesis, whether preceded or not by an inflammatory affection of the smaller joints, which, however, always very soon disappears.

Diagnosis.—Gout may be distinguished from rheumatism by its commencement in the small instead of the large joints; also by the peculiar manner of attack. When the gouty diathesis is strongly marked, the joints of the toes, and sometimes those of the fingers, are permanently enlarged and disfigured.

Causes.—The gout is emphatically the disease of the gourmand and the epicure. Wherever this diathesis prevails, there has nature

stamped, in painfully legible characters, the penalty of riotous living. A vegetable-eater and water-drinker has never, probably, been afflicted with any "joint-racking rheums" like unto this malady, since the creation, unless inherited. It is said, indeed, not to be exclusively confined to "high life," as it is occasionally known among the poor and laboring classes. No doubt the indigent and hard-working can eat and drink in such a way as to produce it. Yet we know this is very uncommon; and we must regard the disease as, in a general sense, the legitimate fruit of fashionable yet unnatural luxury. Flesh and wine represent the nature of its predisposing causes. The free indulgence in animal food of any sort, and the free use of fermented liquors of any kind, are among its prominent causes; and when to these are added concentrated and constipating food, with sedentary or indolent habits, we have the general condition which produces the gouty diathesis in its greatest intensity. The diathesis sometimes exists in those who eat intemperately and drink temperately, or *vice versa*.

In gouty subjects, the functions of alimentation so frequently overact those of elimination, that the surplus materials obstruct the capillaries, and the retained morbific matters so change the secernent action, that chalky concretions are formed in and around the cavities of the joints, in the ligaments, tendons, and membranes, in the little mucous bags—*bursæ mucosa*—which surround the joints, in the cellular substance, and even in the pores of the skin. The joints of the fingers and toes, more especially the latter, are frequently enlarged, hard, and tender, occasionally ulcerate, and sometimes form fistulous openings, through which oozes a whitish earthy matter, consisting mainly of urate of soda.

Treatment.—The indications are: 1. To relieve the paroxysm. 2. To prevent its return. These mean, in other words, to mitigate the pain, and restore general health. Cold or very cold wet cloths should be constantly applied to the affected parts until the pain subsides; or the feet or hands, when inflamed, may be held in cold water until the preternatural heat is subdued. There is no danger whatever of producing metastases to the internal organs—as bleeding, blistering, drastic purging, etc., do produce—by the application of cold water to the inflamed joints, provided the application is not continued beyond the point of reducing the temperature to the natural standard. The general feverishness attending the paroxysm requires the wet-sheet pack, so managed as to produce moderate perspiration, followed by the shallow tepid-bath. Water-drinking should be as copious as the stomach can bear without painful distension, and the diet should be of the "hunger-cure" kind.

To overcome the gouty diathesis requires a systematic employment

of the water processes, with the strictest general regimen. A daily pack for an hour, followed by a plunge, dripping sheet, or half-bath, a daily tepid shallow-bath for ten minutes, with the pail douche over the shoulders, a daily hip-bath at about 65° for fifteen minutes, a daily foot-bath at about the same temperature for ten minutes, constitute the average number and strength of the bathing part of the regular treatment. In addition to all this, the douche may be applied to the affected part with as much force as can be borne without much pain, and moderately along the spine, two or three times a week. With these processes the patient should exercise all that his strength will admit of, short of absolute exhaustion, and drink all the water the stomach can endure without pain. The diet must be plain and unconcentrated, consisting mainly of vegetables, ripe fruits, and unbolted farinaceous preparations. Nearly all medical authors agree that gouty subjects ought to be put upon an *abstemious vegetable diet*. Even many writers who insist that man is naturally omnivorous, and cannot subsist on an exclusively vegetable diet, seem to forget their darling theory, and prescribe for this disease what they specially interdict in almost every other.

The bathing part of the treatment may be managed in various ways, according to convenience, with equal efficacy. The following plan, with such modifications as circumstances will naturally suggest, is adapted to all ordinary cases: In summer, a plunge-bath on rising in the morning, followed by a long walk; at ten A.M., the pack and douche; at four to five P.M., half-bath and pail douche; at half-past eight P.M., sitz-bath. A foot-bath may be taken at either nine A.M., five to six P.M., or evening, or at all of those times. In winter, a pack and half-bath in the morning; douche at ten A.M.; half-bath at four to five P.M.; sitz in the evening; foot-baths as above.

Gouty patients who have been drugged extensively, their nerves enfeebled and their constitutions shattered with opium, colchicum, veratrum, elaterium, antimony, etc., must be managed with more care and tenderness. They will not bear as cold nor as vigorous treatment. For such, the pack and dripping sheet, the tepid shallow-bath, and occasionally, when they become unusually tender and irritable, the full warm-bath, followed by the tepid pail-douche, are the best leading water appliances.

Crises in Gout.—While under treatment, gouty patients are liable to critical disturbances in the form of boils, diarrhea, and particularly to a general feverishness, during which all the affected parts, and sometimes the whole body, becomes highly and suddenly inflammatory and painful. The full warm-bath, or the moderately hot bath, is useful

once or twice during the latter form of critical disturbance, which usually lasts several days. Diarrhea, if severe, requires the warm sitz-bath and cool injections; boils need nothing but wet compresses. Whenever the crisis is severe, all active treatment should be suspended; wet cloths, or cold water in any convenient way, may, however, be applied to swelled and painful parts during the crisis the same as at other times.

Rheumatism.—Like gout, rheumatic affections are almost invariably connected with derangements of the digestive apparatus, and generally preceded by unusual disturbance in the functions of the primary nutritive organs. Some authors, indeed, maintain that gout and rheumatism are convertible maladies, often blending together, or running into each other, in their varied local manifestations. In fact, rheumatism might very well be defined as gout of the larger joints; while the stiffness, lameness, and rigidity of the muscles, and the thickening and swelling of the structures in and around the joints, are about as common to either manifestation of the arthritic diathesis.

Symptoms.—Inflammatory rheumatism presents all the essential symptoms of inflammatory fever, or synochus, with the addition of extreme soreness and tenderness over the whole surface of the body, and also acute pain in some one or more of the larger joints, or in the small of the back, rendering all motion of the body and limbs extremely difficult and painful The patient is often unable to get on or off the bed without assistance, and then the effort is attended with great suffering. The *articular* variety has been called *rheumatic fever*, or *acute rheumatism*. It differs from the former in being attended with much less general pain and soreness, and a much greater inflammatory action and swelling of some one or more of the large joints and surrounding muscles, generally the hip, knee, elbow, or shoulder. *Lumbago* is the variety in which the pain is felt chiefly in the loins, usually shooting upward. In the form called *sciatica*, or *coxalgia*, the pain is felt mostly in the hip-joint, the disease also being attended with an emaciation of the nates or buttock of the affected side, or an elongation of the limb. In the variety called *muscular*, the pain is experienced mainly in the muscles of the diaphragm, or in the intercostal muscles between the ribs, when the pain is greatly increased by a full inspiration. This form has been called *pleurodyne*, *pleuralgia*, and *spurious pleurisy* by authors; and not unfrequently mistaken for real pleurisy, and the patient bled, leeched, and blistered not a little to his disadvantage. *Chronic* rheumatism is characterized by pain, rigidity, and weakness of the larger joints and surrounding muscles, accompanied with no regular

fever, and but slight occasional febrile paroxysms, and with very little perceptible swelling. This form of rheumatism is almost always relieved temporarily by warmth, hot applications, stimulating liniments, etc., while all the other forms are frequently aggravated by them.

The fever attending rheumatic attacks is peculiarly accompanied with frequent and irregular sweats, which, however, do not prove in any sense critical, nor exert any marked influence upon the course of the disease.

Causes.—Unusual exposures to wet and cold while the body is in a state of exhaustion or obstruction, seem to be the general producing causes of all forms of rheumatic affections.

Treatment.—The proper management of the first, or inflammatory variety, is almost identical with that of inflammatory fever. In some cases where the joint or joints most affected are so tender that the least motion produces excruciating pain, a combination of relaxant and cooling processes will give prompt relief, as the warm fomentation, or warm douche, followed by the coldest wet cloths or pounded ice. The articular form requires a less vigorous application of the wet sheet, or other general cold treatment, but a more persevering application of cold compresses to the affected joints. Lumbago and sciatica, and that form called muscular, in addition to moderate general treatment, are relieved with the greatest facility by the hot fomentation to the parts affected with pain, stiffness, and rigidity, followed by the cold covered compress, or, what is better still, the warm douche followed by the cold, the temperature and force of the stream to be regulated in some degree by the patient's feelings. Chronic rheumatism, in whatever form manifested, requires the same general management as gout, the leading curative indication being to restore the general health. As constipation is an almost universal concomitant or antecedent circumstance, especial attention must be given to the state of the bowels, which should be kept free by means of injections, and an opening, plain diet.

So long as the *mercurial mania* rages among the medical gentlemen of the allopathic school, so long will the hydropathic physician be continually called upon to treat many anomalous varieties of chronic rheumatism, *made such* by the *mercury* with which the patient has been dosed in the treatment of some acute disease. Such patients are peculiarly sensitive to vicissitudes of weather, and do not bear as cold treatment as those whose systems have never been mercurialized. The wet-sheet pack, followed by the tepid half-bath, once a day, the tepid half-bath followed by the pail douche, and the occasional employment of the warm-bath, followed by the pail douche or shower, constitute the best general plan of managing *mercurial rheumatism.* Some-

times the treatment will set the remains of the mineral, which has long lain dormant, as it were, in the system, in motion, and reproduce salivation, spongy gums, fetid breath, metallic taste, or other evidences of mercurial action. During this mercurial excitement, no very active cold treatment should be employed. The tepid sponge-bath, or half-bath, with such local applications as the local pains demand, the temperature being such as feels most agreeable to the part affected, may be employed until the manifestations of mercurial action subside, when the regular treatment may be resumed. When the whole surface becomes extremely susceptible and sore, the hot-bath, followed by the tepid wash or pail douche, should be employed.

The general regimen applicable to gout is equally so to rheumatism.

CHAPTER IV.

INDIGESTION.

Wherever the refinements of civilization and the luxury of plenteousness exist, dyspepsia, in some of its protean shapes, seems to be the general condition of the inhabitants. I do not agree with Dr. E. Johnson *(Results of Hydropathy)* that "constipation is not a disease of the bowels;" nor do I coincide in his notion that mental excitement is the sole cause of indigestion. I admit, however, it is one among several very efficient causes of that extensive train of morbid maladies which we call dyspepsia.

Nosologists have enumerated more than one hundred distinct diseases, to which they have assigned specific characters, and which they have scattered through various and dissimilar genera, orders, and classes; yet each is nothing but a mere circumstance of deficient or imperfect performance of the digestive function. Thus Dr. Good, in his elaborate system of pathology, elevates such symptoms of digestive derangement as heartburn, water-brash, flatulence, depraved appetite, colic, constipation, teething, etc., to the rank of idiopathic maladies. I shall undertake to associate all these manifestations of one general morbid condition into a more natural arrangement, and treat of them in the present chapter. The propriety of thus grouping together several classes of diseases which have been usually considered not only as idiopathically distinctive but as demanding widely different and even oppo-

site methods of treatment, is enhanced by the fact that they are all really cured by the same general plan of hydropathic medication

Diseases of Indigestion.

- Dyspepsia: Morbid Appetite, Morbid Thirst, Heartburn, Flatulence, Constipation, Sick Headache.
- Liver Complaint: Chronic Hepatitis, Jaundice, Gall-Stones, Duodenitis.
- Misdentition: Toothache, Tartar of the Teeth, Excrescent Gums.
- Colic: Iliac Passion, Painter's Colic, Wind Colic, Surfeit, Constipated Colic, Constrictive Colic.
- Cholera: Bilious, Flatulent, Spasmodic, Infantum.
- Diarrhea: Feculent, Bilious, Mucous, Milky, Serous, Tubular
- Intestinal Concretions: Bezoar, Calculus, Scybalum.
- Worms: Alvine Worms, Anal Worms, Erratic Worms.
- Hemorrhoids: Blind Piles, Bleeding Piles. White Piles, Caruncular Piles.

That the majority of the diseases named in the above table are symptomatic of indigestion all will allow; but those who are accustomed to regard *worms* as natural to the alimentary canal, and those who consider the *piles* as a local affection, will object to the tabular arrangement. But I will venture to assure every physician who will carefully investigate the subject, that he will find the stomachs and bowels of children or adults infested with vermin in very nearly the ratio that foul secretions and crude ingesta evince disordered digestion; and if he will attentively study the history of hemorrhoidal affections, he will find them, in some form, almost as general as, and almost invariably preceded by, constipated bowels. Still greater will be the dissent of those who have imagined epidemic or spasmodic cholera to depend on specific contagion, ozone, electrical or magnetic states of the atmosphere, or planetary or other *unearthly* influences, to the idea that all the choleras of medical books are dyspeptic affections. But, whatever may be their predisposing or exciting causes, it is sufficiently apparent that the actual condition of the disease is that of extreme derangement and intense irritation of all the organs auxiliary to digestion.

Dyspepsia.—Depraved appetite, unnatural thirst, flatulence, acrid eructations, heartburn, or water-brash, irregular bowels, and sick head-

ache, are among the multitudinous symptoms of dyspepsia; yet the disease may exist with the absence of either one or the majority of them.

Symptoms.—Fastidious or irregular appetite, constipation, or diarrhea, or those states alternating, sense of weight or other feeling of distress after eating, food digested with difficulty, depressed spirits, disturbed sleep, occasional pain or tenderness in the epigastrium, a feeling of languor, which is relieved by taking food, aversion to exercise of body or mind, are symptoms which, variously combined, designate the disease. Usually there is occasional palpitation or throbbing of the heart, furred tongue, and slow, irregular, or intermittent pulse.

Doctor Gully and some other authors distinguish dyspepsia into the *nervous* and *mucous* varieties. The term, nervous, is applied to the disease when occurring in persons of irritable temperaments, with a large development of the brain and nervous system; and the term, mucous, is applied to the disease as it appears in persons of more torpid or phlegmatic temperaments. The former generally results from mental shocks, excessive emotions, intense study, violent passions, and is attended with great pain or uneasiness in the stomach, spasms, gnawing or sinking sensations, capricious appetite, etc. The latter results more especially from sedentary habits and excesses in eating and drinking, and is attended with torpid bowels, and but little actual pain in the digestive organs.

Treatment.—No other disease presents itself under so great a variety of complications; and although the principles which regulate its treatment are very simple, there is an unlimited opportunity for the exercise of skill and tact in the management of a dyspeptic invalid. Usually we have to deal with fickle tempers, despondent minds, strong morbid appetites with weak resolutions, all of which circumstances are aggravated by the patient having previously doctored with all sorts of doctors, and swallowed every thing he could read of in the newspapers in the shape of nostrums.

All the resources of hygiene must be drawn upon, and adapted to the circumstances of each particular case. The nervous, feeble, restless individual, who is all activity with little strength, who has a constant disposition to move with no power to endure, must take moderate water-treatment, exercise gently, prefer sailing, riding, etc., to active walking, and sleep all that he is inclined to, even though it be late in the morning, or at other times of day; while the torpid, quiet, but more enduring person should employ more powerful water processes rise early, walk much, and practice gymnastics for amusement, unless he can find amusement in some light kind of manual or mechanical labor

The diet should be more plain and simple as the disease is more advanced and serious. Regularity in the alvine dejections is of first importance. The patient should, if possible, go to stool at the same time of each day, and if the diet does not, in a very few days, produce regularity in the discharges, cool or cold injections should be employed daily, soon after rising. As a tonic effect is always desirable, cool or cold water should be employed, whether the bowels are loose or constipated, except when affected with colic or griping. The sitz-bath and the abdominal compress are the important and ever-necessary local baths. The former may be resorted to two or three times a day, for ten or fifteen minutes, the temperature as cold as the patient can bear without producing a permanent chill, or disagreeable feeling of weakness and stiffness. The crash towel bandage is the best; the wet part should pass round the body, when it can be worn without unpleasant irritation or chilliness of the back; otherwise it should only extend across the abdomen from one side to the other. Foot-baths should not be neglected when there is a tendency to cold extremities. The most important general baths are the partial or complete wet-sheet pack, according to the general heat and reactive power, and the tepid half or shallow-bath. The plunge or douche may be employed under the restrictions heretofore specified; the dripping sheet is a good substitute for either of the other general baths when it is impracticable.

The hot fomentation to the abdomen is serviceable whenever indicated by severe headache, spasms, general restlessness, nausea, vomiting; and sick headache is relieved by drinking warm water, followed by sips of cold, and, in severe cases, the abdominal fomentation. When sick headache occurs periodically, warm water should be copiously drank on its first attack, to dilute and wash away the offending bile or other acrid fluids as soon as possible.

A good combination of baths for full or active treatment in an ordinary case, would be the following daily: Tepid half-bath five minutes and pail douche; wet-sheet pack, followed by moderate douche, plunge, or dripping sheet; sitz-bath at 60°, ten minutes, followed, after an hour's interval, by a foot-bath at 72°, five minutes; the first to be taken on rising; the second from ten to eleven A.M.; the third at four to five P.M., and again in the evening. The wet girdle should be wet and reapplied after each bath, and again at bedtime. In protracted cases requiring a long course of treatment, it is advisable to omit the wet bandage occasionally for a few days, and then resume it again.

In many cases of dyspepsia there is a weak and relaxed, or a rigid and contracted state of the external abdominal muscles, especially frequent in those who have been addicted to crooked bodily positions, in-

tense mental excitement, sexual abuses, or the use of narcotic stimulants, as tobacco and alcohol. The free indulgence in tea and coffee also conduces to it; and fine, constipated food is among its producing causes. These cases require local manipulations, as kneading, pounding, rubbing, etc., the lower part and external muscles of the abdomen, not with sufficient violence, however, to cause pain. A trotting horse affords a good exercise. Climbing mountains, and walking rather fast over an uneven surface, are also peculiarly beneficial exercises.

Liver Complaint.—A morbid condition of the liver is as constant and as necessary a concomitant of indigestion as is a morbid condition of the stomach. In some forms of deranged digestion the stomach and bowels appear to be the seat of the more prominent morbid phenomena, and in others the liver presents evidences of being disproportionately affected. Its pathological conditions are various, but its functional derangements may all be comprehended under the general term of liver complaint.

Symptoms.—*Chronic hepatitis* is a state of passive or chronic inflammation of the organ. In addition to a variety of dyspeptic symptoms, there is sense of weight, fullness, or other pain in the region of the liver, which is increased by deep pressure; sometimes the pain is referred to the left side; at other times to the right shoulder, or between the shoulder-blades; there is frequently darting, irregular, and fugitive pains along the breast-bone and through the chest; some degree of enlargement or hardness is usually obvious to the touch under the short ribs of the right side; the countenance is sallow; the bowels are costive; the stools are clay-colored; the patient is torpid, inactive, and desponding, and there are occasional attacks of jaundice. Dropsy frequently follows this form of diseased liver. It is also generally attended with a dry, husky cough, and a slight hawking, or spitting of a thick, tenacious mucus, especially in the morning, when the sputa appears dark and carbonaceous, as though charcoal-dust had been diffused through it. The cough is immediately caused by the engorged or swelled liver pressing upon the diaphragm, and the viscid secretion of the mouth or throat is owing to the irritation of congested and acrid bile. This cough and expectoration may be distinguished from that which has its seat in the lungs or their appendages, by the *slow pulse*, and the prominent hepatic or dyspeptic symptoms.

Jaundice—the *icterus* of the books—has been commonly distinguished into the *yellow* and *black*, or *green*, according to the discoloration of the skin from impacted and partially putrescent bile, to which some authors have added the subvarieties of *biliary*—produced by a resorption of

bile; *gall-stone*—resulting from obstruction of the bile-ducts from inspissated bile; *spasmodic*—produced by spasmodic stricture of the bile ducts; *hepatic*—resulting from schirrus or induration of the liver; *infantile*—occurring in infants; and *black vomit*—the regurgitation of morbid bile into the stomach, and its ejection, mixed with dark, grumous blood. Jaundice, in a general sense, is known by debility, languor, inactivity, heat and pricking of the skin, bitter, nauseous, or acrid taste in the mouth, yellowness of the conjunctiva of the eye, and subsequently of the whole surface of the body; the bowels are irregular, the urine high-colored and yellowish, the pulse is usually slow and weak, the mind is downcast and gloomy, or listless, wandering, and irritable, and there is feverish heat and dryness of the skin. When the disease is protracted, the skin turns greenish, brown, livid or leaden, blotches appear in different parts, and the discharges from the bowels are dark, pitchy, and bloody. The special or immediate cause of jaundice is torpor or inactivity of the liver, by which the viscid particles which should be secreted in the liver, and passed off in the form of bile, are left in the blood.

The existence of *gall-stones* is known by the acute and sometimes excruciating pain they occasion when passing through the common bile-duct from the liver into the duodenum; this pain is felt in the epigastrium, extending to the right side and back, and occurs in severe paroxysms, with intervals of comparative ease. The pain suddenly remits when the calculus reaches the intestine.

Duodenitis is an inflammatory state of the mucous membrane of the duodenum, at the point where the bile enters this portion of the intestinal tract; it is occasioned by the contact of acrid and irritating bile, and known by a sickening, sinking, gnawing sensation just below the pit of the stomach, with tenderness to external pressure, often so great as to make the weight of the hand or of the bedclothes painful.

Treatment.—All that has been said in relation to the treatment of dyspepsia, applies with equal force here. There are, however, some modifications of the general plan of management required in some forms and stages of the disease, or rather group of diseases under consideration. The state or condition of liver disease described as chronic hepatitis, in which the bile is still imperfectly secreted, but its quality exceedingly vitiated, requires more especial attention to the stomach and bowels. Warm water emetics are serviceable to deterge the biliary ducts, whenever nausea, bitterness in the mouth, and unusual sense of fullness in the right side indicate obstruction; and if the bowels are costive, with general fullness and tenderness, tepid injections should be

freely employed until these symptoms are removed, when cool or cold ones should be substituted.

Jaundice presents many complicated varieties of morbid phenomena, all of which are usually denominated "*nervous debility*;" a term not entirely inappropriate, since the thick viscid blood, consequent on the retained matter of bile, being unable to penetrate freely the minute capillary vessels, where nutrition of the nervous, as well as the other structures, is effected, the nerves are really impoverished for want of sustenance. In this form of diseased liver, too, the skin is dry and feverish, or clammy and cold, in either case weak, obstructed, and bilious, yet bloodless. Reaction, though sometimes active and prompt, is always feeble and transient; hence we are to begin the general treatment with the gentler processes, employing water of a mild temperature, gradually intensifying the force and lowering the temperature of the baths, as the superficial circulation of the patient improves. The half-bath may be commenced at about 85° or 90°, and gradually reduced to 75° or 70°; the sitz may be employed at first at 75°, and by degrees lowered to 60°; the cold sheet half-pack, or entire warm sheet pack, is advisable at first, gradually proceeding to the ordinary wet-sheet envelopment as the skin becomes invigorated. In some cases, where there is considerable tendency to feverishness, the whole body will readily warm up in the wet sheet, and the glow increase for twenty or thirty minutes, when it will begin to decline, in spite of any amount of extra bedding. Such patients should be taken out of the pack as near the height of the reaction as possible, and bottles of hot water should be applied to the feet, and in extreme cases to the armpits also, to enable them to remain still longer enveloped. The dripping rub-sheet is one of the best appliances in cases of extreme torpor and bloodlessness of the surface, the temperature not being so cold as to leave a permanent chill.

It should be particularly borne in mind, that no patients in the condition of "nervous debility" under consideration, will tolerate *extremes* of treatment, be they hot or cold. There is not sufficient blood in the superficial capillaries to react against very cold impressions, and for the same reason steam or vapor-bathing, or the ordinary hot-bath, has a peculiarly relaxing and debilitating effect, a vigorous capillary circulation being just as necessary to defend the body against one extreme of temperature as another.

The existence of gall-stones only requires the hot fomentation and warm sitz-bath, with copious warm water drinking, to facilitate their passage, and mitigate the pain.

As duodenitis is caused directly by morbid and acrid bile, it will di

appear whenever the healthful secretion of the liver is restored. Sometimes it disappears when the condition of the liver changes from chronic inflammation to jaundice—from morbid action to no action. Occasionally ulceration takes place from the long-continued corrosive effect of putrid bile, resulting in death suddenly and unexpectedly.

Misdentition.—Teething, tooth-edge, toothlessness, and deformity of the teeth, are placed by Dr. Good in the catalogue of diseases belonging to the genus before us. *Teething*, it seems to me, is rather a natural than a morbid process; and, although often accompanied with much pain and suffering, and various diseases, these are all owing to some obstruction or irritation in the digestive organs, producing a general feverishness of the system and an inflammatory state of the gums. *Tooth-edge* is the peculiar tingling or uneasy sensation experienced in the teeth from some kinds of grating or jarring noises, or from certain acids and acrid substances. *Toothlessness* results from constitutional defect, external violence, internal drug-medicines, decay, or old age. *Deformity of the teeth* is generally an unfortunate inheritance, for which the child is indebted to the bad dietetic or other habits, or infirmities, of one or both parents; a great degree of deformity, however, may be produced by bad habits in the dietetic and medical management of the child itself.

The diseases properly coming under the present head are, toothache, tartarous teeth, and excrescent gums, all specially connected with or dependent on depraved or impaired digestion. The history of all the animal creation, and of the whole human race, shows that there is a most intimate relation between sound, clean, symmetrical teeth and healthy, fine, vigorous gums, and correct dietetic habits. The uniformly healthy condition of the teeth of wild animals, and the general rotting state of those of domesticated animals illustrates this fact sufficiently.

The exciting cause of *toothache* is usually "taking cold." It may exist in connection with caries or ulceration of the teeth, or with extreme irritability of the dental nerve without structural decay. The cure may be found in holding tepid or cool water in the mouth, renewing it as often as it becomes quite warm, rubbing the face and neck with the hands dipped in cold water, the shallow foot-bath, and absolute fasting until the pain abates. Very few toothaches can hold out against a fast of twenty-four hours, even if no other medication is resorted to. Rubbing the teeth and gums smartly with a brush dipped in cold water, even until the gums bleed freely, often relieves toothache promptly.

Tartar of the teeth consists of concrete saliva hardened by the earthy

materials which it secretes. The remote cause is undoubtedly the excessive amount of earthy or extraneous ingredients taken into the system with the food and drink, more especially derived from hard water; and the immediate cause is deficient mastication, the food being soft and sloppy, and not demanding sufficient exercise of the teeth to keep them clean. In many instances the mouth is most foully disfigured by tartarous concretions which have destroyed the gums and alveolar sockets. The tooth-brush, aided by some mild dentifrice, is the best palliative we can employ. To effect a cure, the teeth must be cleaned by a careful dentist, and then the dietetic habits must be placed under physiological law.

Excrescent gums may be either soft, spongy, or fungous, or in the form of firm, unyielding lumps or hardened knobs; they are always symptomatic of scurvy, or some disorder of the digestive organs. They can only be cured by attention to the general health. Sometimes the excrescences, when considerably protuberant, have been extirpated with caustic, ligature, or the knife; but unless general health is restored, they will soon grow again.

Colic.—All those diseases comprised under the generic head of cholic, or belly-ache, are characterized by griping pain in the bowels, mostly in the region of the umbilicus, and attended with vomiting and costiveness.

Symptoms.—The species called *iliac passion* is accompanied with painful retraction or drawing in of the navel, and spasms of the muscles of the belly; the vomiting is exceedingly violent, ejecting bile from the duodenum, and often stercoraceous matter from the bowels; and even some cases the injections introduced into the rectum have been ejected by the mouth. This is the disease called *introsusception* or *intus-susception* in medical books, and so denominated from the circumstance that one portion of the affected intestine, constringed and lessened in diameter, has fallen into another.

Painter's colic—known also as *Devonshire colic*, *colica poicton*, and *colica rachialgia*—is so termed from the remote cause being the introduction of lead into the system, and hence mostly confined to painters. In the neighborhood of smelting furnaces, pigs, poultry, and other animals are said to be affected with this complaint. It is evinced by a pain at the pit of the stomach, at first dull and remitting, but gradually becoming more violent and continued, and, as it increases, extending upward to the arms, and downward to the navel, back, loins, rectum, and bladder, and frequently extending to the thighs and legs. From the navel it sometimes shoots with so much violence to each side

that the patient feels as if some person were cutting him in two. The external muscles are extremely sore and tender, and can scarcely bear the slightest touch. Momentary relief is occasionally experienced after the vomiting of acrid bile and slime, but the pain soon returns. In about a week or less, if recovery takes place, relieving sweats appear, and the bowels discharge large quantities of excrement, consisting of hard lumps, or scybala, mixed with blood and dirt-colored mucus, after which the patient is convalescent. Paralysis of the fingers, hand, and arm comes on after several attacks.

It may be poor consolation to wine-bibbers to know that litharge, and other preparations of lead, are extensively employed in the manufacture of sweet and sub-acid wines, and that where such wines are freely drunk, this kind of colic is very prevalent; nevertheless, such is the fact.

Dr. Samuel Cooper, author of a surgical dictionary, remarks: "During the sixteenth and seventeenth centuries, when preparations of lead used to be given in large doses medicinally, the colica pictonum and paralysis, in their severest forms, appear to have been very frequent."

Wind-colic—colica flatulentia—is evinced by acute pain extending to the pit of the stomach, accompanied with great fullness and flatulence, often impeding respiration; it is relieved by pressure, expulsion of wind, or bending the body forward. It is chiefly produced by crude or unripe fruits, long fasting, grief, fear, etc., and is a frequent attendant of dyspepsia and chronic diarrhea.

Surfeit—colica cibaria—is usually produced by loading the stomach with an excessive quantity or indigestible quality of food. Occasionally it results from poisonous vegetables or animals taken into the stomach. Various kinds of shellfishes, and several species of other fishes, are known to have been followed by an attack. It is characterized by pain, nausea, and dizziness, until vomiting takes place, terminating afterward in a griping looseness. There is also, in some cases, an eruption of the skin, with constriction in the throat, an intolerable sense of suffocation, swollen eyes, extreme thirst, and a burning heat over the whole surface.

Constipated colic—colica constipata—is caused by indurated fœces, or other intestinal concretions, and is known by severe griping pain, obstinate costiveness, great tension with little flatulence; the vomiting sometimes accompanied with fœces; the costiveness is attended with bloody strainings, terminating, when not fatal, in a free discharge of the infarcted matter.

The *constrictive* species—*colica constricta*—results from a permanent stricture existing in some part of the alimentary canal. Its symptoms are—a sense of stricture; a feeling of flatulence gradually passing off

by the stricture; the bowels tardy, and discharging with difficulty small liquid stools. In the early stage of the disease there are colic pains and costiveness, alternating with bilious diarrhea; after the disease has existed some time, solid fæces are rarely passed, and only after a great effort, and they are of an extremely slender caliber. Patients have been known to subsist more than thirty days without any evacuation from the bowels.

Treatment.—The general management of colic consists mainly in the employment of copious warm water injections, to free the alimentary canal of its accumulated contents, conjoined with frequent hip or half-baths, which may be either hot or cold, according to circumstances, to quiet pain, and overcome whatever inflammatory or spasmodic condition may exist. In some cases, hot water proves the best sedative, and in other cases, very cold water is most efficient. It is fortunate that in almost all cases, and probably in every case, when warm water fails in giving relief, cold water promptly succeeds. The desirable temperature can generally be very readily determined by the febrile or non-febrile character of the symptoms. If there is considerable heat and fixed soreness about the abdomen, with a general feverishness of the whole body, cold or very cold water is most appropriate; and when the whole body is inclined to coldness and torpor, and the abdominal pains are griping and periodical, hot water is indicated. In mild cases, the hot fomentation, followed by the cold compress, will remove all local distress. Wherever the hip or half-bath is employed, the abdomen and back of the patient should be thoroughly rubbed during its administration. The moderate drinking of water, or tepid water, assists the relaxant effects of the other processes.

In the first-named variety—*colica ileus*—the stricture of the intestine is sometimes so great as to produce a degree of strangulation, liable to be followed by inflammation and gangrene, especially if drastic or irritating purgatives are resorted to, as they generally are in old-school practice. The fæces in this, as in the other forms of colic, may be so hardened as to require the handle of a spoon, or some similar contrivance, to remove them from the rectum. For these reasons, as large a quantity of water as the bowels can well receive should be injected, and the process frequently repeated. The warm stream douche, followed by the cold dash, is excellent as a local application.

The second variety—*painter's colic*—demands, in addition to all the treatment required for the ileus form, thorough detersive and invigorating management. The wet-sheet pack, cold or warm, according to the external heat or coldness of the patient, followed by the dripping wet-sheet or towel-wash and this by the dry sheet and dry hand rub-

bing, will best accomplish the cleansing and strengthening part of the remedial plan.

The third variety—*wind*, or *flatulent colic*—the hot fomentation and a single injection are usually sufficient to remove. If it resist these means, the warm douche to the abdomen, followed by the dash of a pail of cold water to the belly and legs, will effectually disperse it.

The fourth variety—*surfeit*—requires a thorough warm water emetic, a free injection, and a rigidly-abstemious diet, or absolute abstinence, for a few days.

The fifth and sixth—*constipative* and *constrictive*—forms, are cured by a frequent and persevering employment of tepid injections and sitz-baths, as leading processes, assisted by hot fomentations, the wet-sheet pack, and other appliances, as the general symptoms indicate. Especial attention should be given to rubbing, kneading, gently pounding, or otherwise exercising the muscles of the loins and abdomen. The diet should be of the *coarsest* kind—cracked-wheat, rye-mush, Indian gruel, hard wheat-meal biscuits, good fresh ripe fruits, etc.

Cholera.—The group of diseases comprehended under this generic term, is characterized by vomiting and purging, gripings in the bowels spasms in the arms and legs, often flatulent eructations and dejections, with great anxiety and prostration. The usual succession of symptoms is—Vomiting, purging, spasms, prostration, and collapse. In the spasmodic cholera, however, the vomiting is generally preceded for hours or days with looseness or diarrhea. Cholera is distinguished from colic by the presence of purging, and from diarrhea by the absence of vomiting in the latter disease.

In the *bilious* variety—commonly known as *cholera morbus*—the vomiting and purging are copious and frequent, with a redundancy of bile. In the severest cases the vomiting is vehement, the dejections very painful, the spasms violent, and the agony intense. In the worst cases the extremities are cold, the pulse is small, frequent, and unequal, and the patient sometimes dies within twenty-four hours from the first attack. The exciting causes are usually a surfeit, acrid bile, indigestible articles of food, drastic purges, emetic drugs, especially tartar emetic, etc.

The *flatulent* form—*wind cholera*—is particularly characterized by the absence of bile in the discharges; the vomiting and purging are rare; but in their stead there is great and oppressive flatulence and retching, with windy eructations and dejections. This form of the disease is rather peculiar to dyspeptics.

Spasmodic cholera—called also *malignant*, *epidemic*, *Asiatic*, *Indian*,

blue, and *pestilential* cholera—is generally epidemic, though not contagious. The first symptoms are usually experienced during the night, sometimes commencing with a slight general uneasiness and moderate diarrhea; at other times the symptoms come on violently, and follow each other rapidly. In fatal cases death usually occurs at some period between six and twenty-four hours; in a few fatal cases the patient lingers two or three days. The ordinary course of symptoms is, more or less diarrhea; the discharges at first feculent, but soon presenting the appearance of rice-water or gruel; there are flying pains, or sense of coldness in the abdomen, as if purgative medicine were about to operate; the countenance is pale; there is nausea, vomiting, prostration of muscular power, and nervous agitation; cramps in the legs, arms, loins, and abdominal muscles, more or less severe; small weak pulse, intense thirst, and urgent desire for cold water; in most cases cold, clammy skin; all these symptoms may appear successively or almost simultaneously. In some cases the premonitory symptoms exist for eight or ten days; and sometimes the patient is prostrated at once. When the disease comes on suddenly, the cramps usually commence in the fingers and toes, rapidly extending to the trunk; the eyes are sunken, and surrounded by a dark circle; there is vomiting and purging of white matters mixed with flocculi; the features are sharp and contracted; the expression of countenance wild and confused. The face, extremities, and often the whole surface of the body, manifest a varying intensity of a leaden, bluish, or purplish hue; the extremities are shrunk, the nails blue, the pulse thready or wholly imperceptible at the wrist, arm, axilla, temple, or neck; there is great restlessness, incessant jactitation, severe pain in the epigastrium, loud moaning or groaning, difficult and oppressed breathing; difficult inspiration, with short and convulsive expiration; voice hoarse, whispering, or nearly suppressed and plaintive; the tongue is white, cold, and flabby, and the external temperature often sinks below 80°; convulsions recur at short intervals, or a constant tremor exists. The secretions of bile, saliva, tears, and urine are entirely suppressed, and a cadaverous odor exhales from the body. The patient retains his faculties to the last.

Either of the above symptoms may be disproportionately severe, or it may be entirely absent. Those usually regarded as pathognomonic are, watery dejections, blue appearance of the countenance or surface, thirst, coldness of the tongue, and pulselessness at the wrist.

The fourth variety—*cholera infantum*—is peculiar to infants, and prevails extensively during the warm season in nearly all of our cities. In ordinary cases the diarrhea precedes the vomiting for several days; but in severe ones vomiting also occurs from the beginning. The dis-

charges at first are composed of ordinary fœcal matters; but, as the disease progresses, they become watery and variously colored, from a dirty white to a brownish, and sometimes greenish hue. Sometimes these discharges are frothy, like yeast, and mixed with the food, which passes the bowels almost unaltered; in some cases the discharges are bloody, as in dysentery. There is raging thirst, the tongue is dry, but scarcely furred; the febrile heat is very irregular; the body emaciated; the skin grows dry and ash-colored; the abdomen is very much heated toward the termination of the disease; the pulse is small, weak, and frequent throughout. It usually runs its course in about three weeks.

Treatment.—*Bilious* cholera in its early stage requires copious warm water injections, and free warm water-drinking, to cleanse the whole alimentary canal as promptly as possible. When the discharges have existed for a considerable time, and the patient is greatly exhausted, or after the employment of the cleansing processes above named, frequent sips of cold water should be taken, and moderate cool injections employed after each dejection. The cold compress should be applied to the abdomen, and very frequently changed. When the griping is extreme, the hot hip-bath should be resorted to; and the cold hip-bath when there is much external heat and tenderness of the abdomen. The wet-sheet pack and the pouring head-bath are appropriate and very efficacious, and often magically soothing processes, after the stomach and bowels are freed of their irritating contents.

The *flatulent* form may be relieved by hot fomentations or hip-baths, and moderately cool injections.

In indicating the appropriate hydropathic treatment for *spasmodic* cholera—the most *frightful*, yet not the most *fatal* pestilence of modern times—I feel no small degree of embarrassment; not that I regard the Water-Cure, which I claim to be a sufficient system in all other functional diseases, as an exceptional failure in this, but because it has no power to reclaim the dead; and in many cases an attack of this disease is a death-stroke. Persons of gross habits, the intemperate, the debauchee, the riotous liver, and those whose dietetic habits have been peculiarly enervating and constipating, are especially and almost exclusively the subjects and the victims of this penal scourge. The nature of the disease is an intensely irritated or peculiarly inflammatory state of the mucous membrane of the stomach and bowels; the diarrhea, which the drug-physicians regard and treat as though *it* were the essential disease, being a mere indicent, effect, or symptom of this general morbid condition. That debility and obstruction in the primary nutritive functions constitute the essential condition, while inflammatory

action and serous discharges constitute the leading manifestations of the disease, is rendered probable, if not proved, by the fact, that no individual of correct dietetic habits—such habits as are advocated in this work—ever yet had the disease. This is certainly true of the Grahamites and Vegetarians of New York, in all the seasons—1832-34 and 1849—that it has prevailed epidemically; and as far as I can learn—and I have taken no little pains to ascertain the fact—throughout the wide world.

When I say that dietetic errors are prominent among the producing causes of malignant cholera, I do not mean exclusively habits of gluttony and intemperance. Many persons, intending to diet preventively, have dieted in exactly the way to produce it. Medical councils, boards of health, and sanatory committees have generally given authoritatively more bad than good advice, both as respects avoiding the disease and curing it. The preventive measures officially recommended in New York in the *hot* season of 1849, consisted mainly of "flannel next the skin, the *warm* bath occasionally, a greater proportion of *animal* food, and fine, *constipating*, farinaceous food." Under the delusion that "the diarrhea was the cause of all the symptoms which followed, and that if the diarrhea could be prevented, no cholera could occur," rice, dried beef, bakers' fine bread, with animal food two or three times a day, and the almost entire prohibition of fruits and vegetables of all kinds, became substantially the preventive plan of living—a plan which was faithfully followed, *even unto death*, by many persons and several physicians in this city. The true preventive plan is exactly the opposite in every respect.

The drug-treatment of cholera would be amusing for its inconsistencies, did its consequences not border so closely on the tragical. A great variety of plans of medication, directly opposite to each other, have been tried with equal success, which fact ought to be conclusive with every unprejudiced mind that the whole is purely empirical. Let us place a few of the opposite plans of treatment recommended to us on high authority in juxtaposition: Bleeding and antimony—opium and brandy; copious libations of cold water—powerful internal stimulants, as capsicum and cajeput oil; emetics of mustard, ipecac, antimony, and blue vitriol—iced-water, or bits of ice, to allay sickness at the stomach; cathartics, as calomel, castor-oil, colocynth, jalap, colchicum, and croton oil—astringents, as sugar of lead, lime-water, and nitric acid; hot water, fomentations, dry heat, wine, and alcohol—cold water, solutions of potash, soda water, and effervescing draughts; mustard plasters and blisters to the stomach, caustics to the spine—large doses of opium and strychnine; inhalation of oxygen gas—injections of saline

solutions into the veins; galvanism and mercuria frictions—tobacco, and the exhausted air-bath, etc., etc.

In the early stage of the disease, a free injection of tepid or rather warm water should be administered frequently; meanwhile the thirst should be assuaged, and the heat of the stomach mitigated with frequent but moderate draughts of cold water, or bits of ice, and the *cold* compress to the abdomen, well covered with dry, soft flannel. Before the surface becomes very cold, or the patient sinks into collapse, the dripping wet sheet, followed by the dry sheet, and both accompanied with active and persevering friction, should be employed; the wet-sheet pack also works admirably in the early stages. If the patient is too weak to bear these processes, and in the later or collapsed stage, the surface should be well rubbed with a cold wet towel, and this succeeded by active friction with dry soft flannel or the dry hand; the injections should then be frequently employed, but of *cool* water, and moderate in quantity. In the very outset of the disease, provided there is much nausea and retching, I would employ a brisk warm water emetic, and follow it with sips of cold water according to the degree of thirst; the cool or cold hip-bath is also a valuable assistant in any stage of the disease preceding the collapse. When the spasms are violent, the external friction should be proportionally vigorous. In bad cases, two or three stout, active attendants ought to *work* upon the patient by means of wet and dry rubbing alternately, so as to promote the superficial circulation as much as possible, and thereby relieve the internal congestion.

Cholera infantum is generally easily cured by cool injections, the abdominal compress, and the tepid towel bath or ablution, as often as the surface manifests any considerable feverish heat. The patient may drink of pure water according to thirst. When the evacuations from the bowels are mixed with blood, the injections should be quite cold. In protracted cases, the child should be placed, once a day, when the fever is highest, in a tepid half-bath and the abdomen, back, chest, and even extremities well rubbed with the bare hand. The food must be exceedingly simple. Wheat meal mush and rice, seasoned with a little sugar or milk, are the best articles.

Diarrhea.—The group of diseases properly arranged under this head are characterized by frequent and copious discharges by stool, with a sense of weight and uneasiness in the lower belly, and without severe griping or tenesmus; nausea and vomiting are occasional. but not usual incidents. All forms of diarrhea may become chronic, in which event there is great emaciation.

In the *feculent* variety—*diarrhea fusa*—the fœces are of common quality, but simply loose and copious.

The *bilious* variety—*diarrhea biliosa*—is only distinguished from the former by the bright yellow color of the discharges.

In the *mucous* form—*diarrhea mucosa*—the dejections consist mainly of, or contain a large quantity of mucus. This affection has sometimes been called *catarrhal diarrhea*.

The *white looseness*—*diarrhea alba*—is characterized by dejections of a milky color, resembling a mixture of water and lime, with a frothy scum. This has been called *chylous diarrhea* by some authors, on the mistaken supposition that the non-absorption of chyle was its immediate cause. It is chiefly found in persons whose digestive powers have been shattered by severe fevers and severer drugs, and by excessive indulgence in stimulating food or drink, or narcotic irritants, as alcohol and tobacco.

In the fourth variety—called *lientery*—the dejections consist principally of undigested aliment, which passes rapidly through the alimentary canal, with but little change.

In the *serous* variety—*diarrhea aquosa*—the discharges are almost entirely limpid and watery.

Tubular diarrhea is known by discharges consisting more or less of membrane-like tubes, or fragments of membranous tubes, which are whitish, viscous, and inodorous. This membranous secretion is of the same nature as that which takes place in the mucous surface of the trachea in cases of croup. Its expulsion from the bowels often alarms the patient, who mistakes it for a portion of the bowel itself. In some instances, membranous tubes half a yard in length have been evacuated.

Treatment.—In a general sense, the treatment of diarrhea, when protracted or chronic, is essentially the same as for dyspepsia, of which it is mostly symptomatic. The *feculent* form, being occasioned by excess in quantity, or an irritating quality of food, requires no medication save the negative remedy—fasting. *Bilious* looseness is readily relieved for the time by one or two copious tepid injections. All the other forms must be treated on general principles; the local irritation may be relieved by sitz-baths, cold injections, cold compresses, hot fomentations, etc., as either may be indicated, while the cure must be found in a restoration of the general health, for which purpose all the means recommended for the treatment of dyspepsia must be had recourse to. In all forms of chronic diarrhea the diet must be carefully attended to; it cannot well be too bland and simple and the whole regimen is, in all respects, the same as for dyspepsia.

Intestinal Concretions.—There are three kinds of stony concretions found in the stomach or intestinal canal, all of which are the result of indigestion connected with constipation. One kind, called *bezoar* or *bezoardus*, is frequently found in the stomachs of ruminating animals, especially the goat, but very rarely in the human stomach. It consists of a central nucleus of gravel, straw, glass, seeds of plants, etc., around which a vegetable matter or animal secretion is closely agglutinated, having a glossy white or a bright metallic luster. These concretions were formerly regarded as febrifuge by physicians, and worn as amulets by the superstitious.

Another kind—*intestinal calculus*—more frequently found in the human stomach, is composed of the same earthy and sandy matters as are found in the bladder in calculous affections of that viscus, and are of various sizes, from a pea to a hen's egg. The long-continued use of chalk, magnesia, etc., so generally prescribed for acidity of the stomach, is a frequent cause of these concretions; hence dyspeptics are peculiarly liable to them. Preparations of iron, particularly the carbonate, when administered medicinally, have been known to accumulate in the bowels and form concretions.

The third kind—*scybalum*—consisting of indurated mucus or oily matter mixed with hardened fœces, results from constipation, by which the excrementitious matter remains too long in the cells of the colon, or some other part of the alimentary tract. The discharges are usually in the form of hard roundish balls, from the size of a pea to that of a walnut. The substance called *ambergris*, found in the larger intestines of the cachalot, or spermaceti-whale, is supposed to consist of the hardened fœces of the whale, and to be the result of constipation; hence the more sickly the animal when harpooned, the more productive and valuable is its yield of ambergris.

It is generally difficult to recognize these affections by the symptoms, save when their character is revealed by the appearance of the concreted matters in the ejections or dejections. Usually, however, there is more or less pain or uneasiness at a particular point in the abdomen, and occasionally a hard, lumpy tumor, which either produces an external uneasiness or swelling, or may be distinctly felt on pressure by the fingers.

Treatment.—All we have to do in the way of medication is to get rid of the morbid accumulations by copious warm injections, and put the patient on plain, unconstipating, healthful fruit and farinaceous diet.

Worms.—Pathologists are not all yet agreed whether invermination—worms, or the larvæ of insects inhabiting the stomach or intes-

tines—is natural or abnormal. It is not very long since a kind of worm-mania prevailed in the medical profession, by which a multitude of diseases were ascribed to vermination. Dysentery, plague, measles, small-pox, hydrophobia, itch, syphilis, piles, cholera, and even toothache, have been imputed to various kinds of animalculæ, vermin, or insects.

There is no manner of doubt that worms are suspected, by physicians and nurses, to occasion various ailments of children much oftener than they really exist; but it is equally true that they do occasionally effect a lodgment, and become developed in the alimentary canal, producing a variety of symptoms indicative of gastric and intestinal irritation. Their origin is not so clear. In some instances it is quite obvious that the young or ova of some species of worms is taken into the stomach with the ingesta; generally when drinking of stagnant or marshy waters, or when eating decayed or infected fruits and vegetables, or partially decomposed and putrescent animal food. It is also highly probable, at least, that the minute eggs, or ovula, of various animalculæ floating in the atmosphere, and collecting, especially in damp places, on the alimentary materials, get an entrance into the digestive cavity, and, providing they find in foul secretions, retained excrementitious matters, or impurities of any kind, a proper nest, quicken into life, grow, and become finally so strong and vigorous as to resist the ordinary solvent property of the vital fluids, and the expulsive efforts of the unaided *vis medicatrix naturæ*. This idea makes the existence of worms depend on a morbid condition, which I believe to be the fact; for I have never yet known any kind of vermin to trouble children who have been fed and reared healthfully. Dr. S. Cooper and many other medical writers of credit assert that worms are most prevalent among the poor, dirty, ill-fed classes of society, and particularly in persons who reside in damp, marshy countries.

Alvine worms are those which exist and find a proper nidus in the stomach or alvine canal; they are mostly found in children and sickly adults, producing emaciation, a swelled, hard belly, gnawing or pungent pain in the stomach, pale countenance, fetid breath, and irritation of the nostrils. These worms have been arranged into five varieties, viz., the *long round-worm*, *long thread-worm*, *long tape-worm*, *broad tape-worm*, and *fluke*. The first and second varieties are much more common than the others. The latter is rarely found in man, though the most common to domestic animals.

Anal worms exist in or near the rectum or lower bowel. They excite a troublesome itching or irritation of the part, often preventing sleep, and sometimes occasioning pain or faintness in the stomach.

The varieties found in this locality are the *ascarides*, called also *thread-worm*, and *maw-worm*, the *beetle-grubs*, and the *bots*. The first variety is most common, and is somewhat migratory, being occasionally found in the stomach and bladder. The last two kinds are very rare in the human animal.

The *erratic* worms, which are occasionally though not frequently found in the alimentary canal, are the *hair-worm*, the *erratic leech*, and the *maggot*. These are called erratic, because they do not find a proper habitation in the stomach or intestines; they produce spasmodic colic, with severe gripings; and sometimes vomiting, or dejection of blood. The first and second varieties are chiefly found where the stagnant, muddy, and putrid waters of marshes, pools, and ditches is drank. They sometimes, when accidentally introduced into the human stomach, attain an enormous size, and deviate so much from their ordinary shape as to be with difficulty recognized. Dr. Good says *(Study of Medicine)*: "It is highly probable, however, that they can only live in dyspeptic patients, or persons whose digestive powers are infirm; for there are few or no animals capable of resisting the solvent power of the gastric juice when secreted in full health and vigor." The third variety find their way into the stomach in the condition of eggs or *hoppers*, which are deposited in various articles of food, particularly in all strong and stale meats, cheese, bacon, etc.

Diagnosis.—Dr. Heberden has most clearly presented the general train of symptoms which determine the existence of worms: "Headache, vertigo, torpor, disturbed dreams, sleep broken off by fright, screaming fits, convulsions, feverishness, thirst, pallid hue, bad taste in the mouth, offensive breath, cough, difficult breathing, itching of the nostrils, pains in the stomach, nausea, squeamishness, voracity, leanness, tenesmus, itchings at the anus toward night, at length dejection of films and mucus. The broad-tape-worms produce the severest mischiefs on the body; the teretes and ascarides (round and thread-worms) sometimes lurk scarcely suspected, unless there is itching of the anus, or they are traced in the fæces." All of these symptoms, however, *may* arise from any continued irritation in the first passages; hence, in forming our diagnosis, we must take the greater number of the above symptoms in connection with the *absence* of any other recognizable malady to which they can reasonably be attributed. "In all obscure diseases," says Swediaur, "attended with symptoms that are chiefly anomalous, the suspicions of the physician should be directed to intestinal worms."

Treatment.—It is obvious that the radical cure of worms must depend upon removing the morbid condition which renders the aliment-

ary canal their habitable abode; this implies a restoration of vigorous functional actions, and pure secretions; and to effect this we must again resort to all the medication suited to dyspepsia. Some extra management, however, is necessary to dislodge the intruders from their slimy beds, and loosen their hold upon the mucous membrane. This can be best accomplished by copious injections of cold water occasionally, and rigidly simple and unconcentrated food. A perfect "vermifuge" diet may be found in two articles—the crusts of good, sweet wheat-meal bread, and good, ripe, uncooked apples. It is important that most of the food be hard, so that it be well masticated, and that it be eaten slowly, so that the stomach be not overloaded. Dry toasted brown bread is also admissible; and cracked wheat may be used moderately by way of variety. All slop food is especially objectionable. Those mothers who have pampered their little ones on fine sweet-cake until it has produced worms, may find it somewhat difficult to restrict them to the coarse bread which will cure them. Still, they *can* do it, and *should*.

Hemorrhoids.—Dr. Good limits the definition of the varieties of the diseases comprehended under this generic term to "livid and painful tubercles or excrescences on the verge of the anus, usually with a discharge of mucus or blood." This definition excludes those swellings of the veins near the anus and within the rectum, which are termed *hemorrhoidal varices*, and which almost all persons who are habitually costive are more or less troubled with, evinced by pain and difficulty in passing the fœces, which are slightly streaked with blood. Dr. S. Cooper, and, indeed, nearly all medical authors, regard the various forms as originally mere swellings of the veins.

Description.—In their simplest state piles consist of varicose tumors of the anal veins, covered with a slight thickening of the mucous membrane of the rectum. They are first noticed in the form of small fleshy tubercles, generally of a brownish or pale red color and either situated within the anus, or descending from the rectum. They have rather a solid and spongy feel, and when quite external are pale, and more elastic and transparent; they frequently appear and disappear very rapidly. Piles often contain a central cavity, filled with fluid or coagulated blood; and by repeated attacks of inflammation the swellings gradually enlarge into caruncular excrescences about the verge of the anus, either within or without, of various shapes and forms, from pea-sized to fig-sized, and are frequently so painful as to prevent either sitting or walking. When these caruncles are hard, florid, incompressible, without discharge, and intolerably sore to the touch, the

affection is called *blind* piles. When the irritation accompanying them induces a discharge of whitish mucus from the neighboring glands, it is called *white* piles. When the hemorrhoidal vessels, which form or support the growing tumors, are so distended as to burst and bleed freely, it is denominated *bleeding* piles. And when warty excrescences spread about the perinæum, or within the verge of the anus, it is called *caruncular* piles. Usually pile tumors become larger and firmer with every reappearance; and when they have been strangulated for some time by the pressure of the sphincter, repeatedly gorged with fluids, or of very long standing, they become fixed and permanent in size, and acquire a greater degree of solidity; they are then a source of almost constant pain and trouble from protrusion, inflammation, or ulceration, and often occasion a most distressing prolapsus of the lower bowel.

Special Causes.—Among the causes assigned in medical books, we find "local irritation produced by indurated and retained fæces; purgative stimulants, especially aloetic purgatives." This may all be resolved into constipation, and the medicine given to cure constipation. Probably more than half the adult population of the United States are sufferers, to a greater or less extent, from piles in some form. For eight or ten years past, during which time my attention has been especially called to this subject, I have found a great majority of invalids who have applied for water-treatment, whatever might have been the character of their leading malady, to be also afflicted with this. Its special and almost exclusive cause is concentrated food, inducing constipated bowels; but it is almost always greatly aggravated by the purgatives which have been given, by regular and irregular quacks, on account of the constipation. Most of the patent pills, from which newspapers derive so large a revenue, and the people so many shattered constitutions, are strongly aloetic, and hence peculiarly calculated to inflame and relax the vessels of the rectum, already irritated and engorged by their hardened contents. Many frightful cases of external protrusion, or falling down of the anus, have come under my observation in the persons of habitual pill-takers. In some cases the bowel has prolapsed three and four inches.

Dr. Good names "peculiarity of constitution" as one of the causes of pile tumors; and Dr. Copland *(author of a Medical Dictionary)* "conceives that piles are most common in persons who possess a very strong action of the sphincter ani, and are hence habitually predisposed to a spasmodic stricture of the rectum." These remarks, from these eminent authors I consider eminently nonsensical. Nothing but the false philosophy of a false system could ever induce such erudite

and critical scholars to perpetrate such absurdities. According to my experience, nine out of every ten of relaxed, debilitated females, who must of necessity possess a *very weak* instead of very strong action of the sphincter, as well as of all the other muscles, are affected with pile tumors.

Treatment.—Piles may be promptly relieved by local appliances; but the cure depends on restoring the integrity of the digestive functions. The general management is essentially the same as for dyspepsia. When the tumors are inflamed and painful, very frequent sitz-baths, of a low temperature, 60° to 50°, with oft-repeated injections of a small quantity of cold water, should be employed, until relief is obtained; after which about four to six ounces of very cold water should be thrown into the rectum every morning previous to the expected action of the bowels. When the bowel is prolapsed, the patient should keep the horizontal position mostly, and apply the coldest wet cloths to the fundament. Sometimes an excessively irritable or highly inflammatory condition of hemorrhoidal tumors, occasions a severe and protracted diarrhea, the discharges occurring as often as once an hour, or every half hour, consisting mainly of small quantities of bloody mucus, or slimy matter tinged with blood, and accompanied with considerable tenesmus, griping, or bearing down sensation. Such attacks usually last a week, and not unfrequently two or three weeks; the patient generally, and the doctor sometimes, mistake the case for dysentery. Here injections do but little service; the wet-sheet pack, two or three times a day, and the wet abdominal bandage very frequently changed, are our most advantageous resources.

The dietary part of the management is of first importance. In some few cases the mucous surface of the lower bowel is so tender and irritable, that almost all food seems to act as a mechanical irritant; the patient, however, at such times needs but very little of any kind, and this may be boiled rice, farina, Graham flour mush, tapioca, etc. But generally the unbolted and unconcentrated forms of farinaceous food are preferable, as in all other forms of indigestion.

Hard warty excrescences around the anus, or scattered over the perinæum, may be removed with entire safety and facility by the ligature, or knife, or clipped off with a pair of scissors. Removal by excision and by ligature has often been practiced in the other kinds of hemorrhoidal tumors, but there is always danger to be apprehended from hemorrhage in the one case, and from sympathetic inflammation in the other; moreover, if all the resources of hydropathy and hygiene are judiciously drawn upon, there is not the least necessity for these surgical operations.

CHAPTER V.

FLUXES.

I ADOPT this generic term, not because it is clearly appropriate or distinctive, but because it is familiar. The only species strictly pertaining to this genus are catarrh and dysentery, both essentially febrile diseases, and each consisting of a peculiar inflammation of some portion of the general mucus membrane; each exhibits two varieties, thus:

Catarrh { Common, Epidemic. Dysentery { Acute, Chronic.

CATARRH.—This is an inflammatory affection of the mucous membrane of the fauces, often extending to the frontal sinuses or bronchia, or both; it is attended with sneezing, obstruction of the nostril, and more or less mucous expectoration, or discharge from the nose.

Symptoms.—In *common catarrh—cold in the head or chest*—the fever is slight; there is a sense of weight over the eyes, and fullness in the head, and the nostrils pour forth a thick, acrimonious ichor, which excoriates the skin; the voice is hoarse, and more or less cough attends. In the *epidemic* form—*influenza*—the attack is sudden, and the fever severe and strikingly depressive; there is great heaviness over the eyes, extreme languor, anxiety, and oppression at the præcordia, with frequent sighing, sickness, and violent headache. The pulse is very frequent, and peculiarly irregular; the skin is moist, with a tendency to profuse sweating, but the heat of the body is seldom considerable; the tongue is white or yellowish, but moist; sometimes there are severe general or local muscular pains, and at other times erysipelatous patches appear in different parts of the body. The danger of this disease is not in proportion to the violence of the symptoms, as compared with all other febrile diseases, for usually the symptoms are extremely violent for one or two days, and then as rapidly subside; great debility, however, frequently exists for weeks or months after convalescence is established. Often severe pains attack the chest, and in such cases physicians, regarding them as indicative of pleurisy, have endangered the patient's life by venesection.

Special Causes.—Common catarrh is usually traceable to taking cold. Influenza, like Asiatic cholera, is usually epidemic, and has prevailed at all seasons of the year, in every state of the barometer, thermometer, and hydrometer. Dr. Good very cautiously imputes its

specific cause to *some* "atmospheric intemperament;" Dr. Weber has suspected "negative electricity" of the mischief; but none of the modern theories are any improvement on that of Hippocrates, which was "providential interposition;" nor the very modest suggestion of Sydenham, who was *rather disposed* to ascribe it to "*some* occult and inexplicable changes wrought in the bowels of the earth itself, by which the atmosphere becomes contaminated with *certain* effluvia, which predisposes the bodies of men to *some* form or *other* of disease." Influenza is the most widely-spreading epidemic known, having sometimes extended over all Europe and a part of America in the same season.

Treatment.—This is exceedingly simple. Practically, common catarrh may be regarded as a *high fever*, and influenza as a *low fever* In the former affection, the wet-sheet pack is specially indicated as the leading measure, repeated according to the general feverishness; and in the latter, the tepid ablution, frequently repeated, and followed by the dry-blanket envelop when the body feels chilly after the bath, with the chest-wrapper, well covered when the lungs are troublesomely affected, and warm hip and foot-baths when the abdominal viscera are disproportionately disturbed. Generally the bowels require to be moved by free tepid injections at the outset; and when there is considerable nausea and retching, the warm water emetic should be administered. The general regimen is the same as for simple fever.

Dysentery.—This disease was called *bloody flux* by the old authors. It is an inflammatory affection of the mucous coat of the larger intestines, accompanied with griping and tenesmus; the dejections are frequent and bloody, and the fœces are discharged irregularly.

Symptoms.—In the *acute* variety, the abdomen is painful or tender; the fœces are discharged with difficulty; mucous and bloody dejections alternate, or are variously diversified in color and consistence; the attending febrile disturbance is considerable, and may be of the *high* or *low* character—the synochus or typhoid type.

What is called *chronic dysentery* is sometimes a milder and more disguised form of the disease, but more generally it is common diarrhea modified by local circumstances, or a sequel of maltreated acute dysentery. In plainer English, it is frequently a drug-disease. This remark need not excite surprise when the formidable array of drug-poisons which modern medical science has brought to bear upon this disease, and upon the patients' constitutions, too—calomel, corrosive sublimate, sugar of lead, antimony, nitrate of silver, opium, capsicum, oil of turpentine, mineral acids, etc.—is taken into account. Chronic dysentery

is attended with but slight fever, and that usually of the hectic type. Either variety may be attended with ulceration of the bowels, and purulent, sanious, or membranous evacuations, or discharges of pure, unmixed blood.

Special Causes.—Dietetic errors of all kinds are the principal predisposing, and undue exposure to cold, damp, sudden alternations of temperature, etc., the chief exciting causes. Bad water and marsh effluvia sometimes occasion the worst forms of the disease.

Treatment.—Medical books are as discordant in relation to the treatment of dysentery, as they are in the case of cholera. In treating the disease hydropathically we must ever keep in view the character or type of the fever, which is in reality as much a part of the disease as is the local inflammation of the colon, or other large intestines. When the general fever is violent, the wet-sheet pack or half-bath should be employed, according to the degree of heat. Moderate draughts of cold water should be frequently administered, and the whole abdomen constantly covered with the wet compress, which should be very often changed, until the pain, heat, tension, etc., subside. In the early stage one or two copious tepid injections are advisable, to clear the alimentary canal of its irritating crudities, after which moderate cool injections are to be employed occasionally. Sometimes very cold or iced water has a more soothing effect upon the griping and tenesmus than any other temperature, and reference should always be had to the patient's feelings in regulating the temperature of the water.

Hip-baths, the temperature low in the ratio that the general fever or heat of the abdomen is high, may be advantageously employed once in two or three hours. I have seldom found any difficulty in curing this complaint in children, in a very few days, by two or three daily tepid washings of the whole surface, the constant application of the wet compress to the abdomen whenever and as long as the heat was above the natural standard, the free use of cool or cold water as a drink, and one or two tepid injections at the outset. The diet should be: entire abstinence until the violence of the fever and local inflammation are both sensibly abated, and then as bland as possible—boiled rice, rice gruel, wheat-meal mush or gruel, toasted brown bread, etc. When ulceration takes place in the intestines, and the discharges exhibit pus, putrid sanies, or black, grumous, fetid blood and slime, the diet may be with propriety restricted, for a week or two, to rice or arrow-root.

I have never known relapses, or "sequelæ," which are so common and so formidable after an attack of this disease and a course of drug-treatment, occur in a patient who was treated hydropathically from first to last.

CHAPTER VI.

CACHEXIES.

Literally, the term cachexia means bad habit of body, a condition which exists more or less in all diseases. But there is a class of diseases pre-eminently distinguished as being caused by or attended with universal depravity of the organization, or general derangement of all the bodily functions, constituting, in fact, a constitutional taint or malconformation, which may be transmitted through many generations, with either increasing or decreasing intensity, as the voluntary habits of each successive generation are more or less in conformity with physiological laws; and this group of diseases may be appropriately considered in the present chapter, as expressed in a tabular arrangement:

- Consumption: Tubercular, Catarrhal, Apostematous, Laryngeal, Hemorrhagic, Dyspeptic.
- Marasmus: Atrophy, Anhæmia, Climacteric, Tabes.
- Elephantiasis: Arabian, Italian, Asturian.
- Hemorrhage: Epistaxis, Hæmoptysis, Hæmatamesis, Hæmaturia, Uterine, Anal.
- Scurvy: Simple Scurvy, Land Scurvy, Sea Scurvy.
- Plethora: Sanguine, Serous.
- Scrofula, Melanosis,
- Cancer, Catacausis.

Most of the above diseases, and several which I have thought proper to consider under other heads, are included in the order *dysthetica*, in Dr. Good's nosology, a term which signifies "an ill-conditioned habit."

Consumption—Pulmonary Consumption—Phthisis Pulmonalis.—Consumption of the lungs is the most general evidence and the most fatal result of the artificial and enervating habits of civilized society. In the city of New York, about 2000 die annually of this disease, and in Boston, Philadelphia Baltimore, and a majority of the

other cities of the United States, the mortality from this source bears nearly the same relation to the population. In most other countries in which civilization has made equal progress, the disease has committed equal ravages. Dr. Young has calculated that it destroys, prematurely, one fourth of the inhabitants of Europe. Females, from their more sedentary, indoor, and relaxing habits, are rather more liable to this malady than males. The period of life between puberty and middle age—fourteen to forty—is more especially favorable to the operation of the causes of this disease, and the greatest ratio of mortality occurs between the ages of thirty and forty. The greatest number of deaths, in this latitude, takes place in the coldest months of the year. This fact, however, does not prove that the cold season is more conducive to the development or causation of consumption, but that consumptives are more liable to sink at that particular period.

Symptoms.—*Tubercular consumption* is by far the most frequent and most intractable form; and, indeed, some authors regard the existence of tubercles in the lungs as essential to the character of true phthisis. It is usually connected with a strongly-marked scrofulous diathesis, is more insidious in its approach, and more delusive in its progress than either of the other varieties. Many persons are born with such a malformation of the chest, and so great a predisposition to tubercles, that the slightest aberrations in the manner of life suffice to induce that condition of engorgement, mal-assimilation, and morbid deposition which eventuates in general tuberculation of the pulmonary structures. The special symptoms are, short and tickling cough; tho pain in the chest is slight; there is either a sense of tenderness or weight experienced at the upper part of the lungs; the breathing is habitually short, and a full inspiration is impracticable, the attempt increasing the sense of weight, soreness, or aggravating the cough; the expectoration is generally scanty and small in quantity in the early stages, and in many cases it is very trifling throughout; the matter expectorated is a watery, whey-like sanies, sometimes tinged with blood, and as the disease progresses, thick, tenacious, curdy, or cheesy particles are excreted. Sometimes small, irregular stony concretions are formed by the deposition of earthy matters—mainly carbonate of lime—in the substance of the tubercles, and expectorated as the process of ulceration releases them from their inclosures. Emaciation does not become strikingly apparent until the disease has made severe inroads upon the constitution, and not unfrequently the body maintains its ordinary fullness until the greater portion of the lungs is fatally occupied by tubercular formations. In those cases attended with but trifling expectoration, there is, of course, but little ulceration; yet generally some por-

tions of the tubercles are ulcerating, and forming open, irregular cavities in the substance of the lungs, while in other parts of the pulmonary structures, the process of tuberculation is going on. As the functional powers of the lungs become impaired, the pulse becomes frequent and feeble, the breathing grows shorter, irregular chills come on, succeeded by some degree of feverish heat; and in the last stages, night sweats, diarrhea, swellings of the limbs, etc., denote the rapidly approaching fatal termination. In this form of consumption, the hope of recovery often attends the patient almost to the dying hour, and schemes of business or pleasure, or new projects for recovery, occupy his thoughts until within a few days or hours of death.

There has been much controversy among medical theorists whether tubercles are the product of inflammatory action, or of irritative action, or of an action to which some other technical term should be applied. The discussion is entirely unprofitable. It is enough to know that the general condition of the body is one of debility; that the local condition of the part diseased is one of engorgement, and its secretions changed from a healthy to a morbid character. It is also a disputed point whether tubercles in the lungs are curable in any case, some eminent authors taking the position of their absolute and unconditional fatality, while others, equally respectable as practitioners and pathologists, contend that cures have resulted in a few instances.

Dr. Good, in allusion to a remark of Dr. Woolcombe, that 55,000 victims annually die of consumption in Great Britain, makes the following very singular observation: "During the last half-century, it is said to have been considerably on the increase; but this is perhaps chiefly owing to the greater number of infants of delicate health who are saved from an early grave by the introduction of a better system of nursing than was formerly practiced, yet who only escape from a disease of infant life to fall before one of adolescence or adult years. And, for the same reason, savages rarely suffer from consumption, as they only rear a healthy race, and lose the sickly soon after birth." I think a better explanation can be found in another way. Much of the increasing mortality is justly attributable, in my opinion, to the introduction of a *worse* system of nursing infants than formerly prevailed, to wit: close rooms, hot slops, tight clothing, nick-nack food, apothecary drugs, etc., by which the bodies of the infants become sickly, stunted, feeble, and susceptible before they emerge from their cradles. The reason that the savages seldom have consumption is because they are comparatively exempt from the peculiar debilitating customs of our "better system." The statement that they lose all their sickly children is wholly gratuitous.

In the *catarrhal* form the cough is frequent and violent, with a copious expectoration of a thin muco-purulent matter, rather mixed with blood, but generally offensive to the smell. There is considerable soreness of the chest, and transient pains shifting from side to side. It comes on after repeated colds, or a protracted catarrhal affection.

The *apostematous* variety is known by a dry cough, which returns fitfully; fixed, circumscribed, obtuse pain in the chest, which is sometimes throbbing or pulsatory; the patient experiences great difficulty in lying on one side. The cough at length terminates in a sudden and copious expectoration of purulent matter, which sometimes threatens suffocation. These symptoms are immediately owing to the formation of an aposteme or abscess in the lungs. When the collection of matter is considerable, the patient often experiences severe rigors or chills, and manifests a high degree of irritative fever. After the discharge of the matter, the patient is sometimes permanently relieved; but usually the relief is temporary, and all the symptoms recur repeatedly at longer or shorter intervals, as new abscesses form and discharge their contents. In some few instances no expectoration takes place, the patient dying before the abscess breaks.

Laryngeal phthisis is that modification of the disease in which ulceration commences in the larynx before any extensive morbid alterations have occurred in the lungs. It is distinguished by excessive irritation and tickling in the larynx, with a cough dry and husky at first, but soon attended with a slight discharge of purulent mucus, frequently streaked with blood; there is also remarkable hoarseness, which occasionally goes and returns without any assignable cause, and a sense of soreness or tenderness about the upper part of the throat; often there is some degree of actual hemorrhage from the diseased part.

All these symptoms may occur in the last stage, or near the fatal termination of either of the other forms of consumption, more especially the tubercular; and also in the worst cases of bronchitis; they can, therefore, only be properly regarded as a distinct variety of phthisis when they take the lead in the morbid manifestations. When the ulceration of the larynx, instead of preceding disorganization in the lungs, comes on after ulceration in the lungs has long existed, the patient complains more particularly of a sore, oppressive sensation in the throat, as if some foreign mass were lodged in the larynx; and this sensation is generally accompanied by more or less difficulty of swallowing; it is, too, usually accompanied with a peculiar hoarseness, or, rather, roughness in the voice. In most cases it is a fatal omen, occurring only a few days, or at most a few weeks, before death.

The *hemorrhagic* variety is characterized by repeated attacks of

hæmoptysis, or bleeding at the lungs. The coughing or expectoration of a large quantity of blood, may indeed be, and usually is, an accidental occurrence in all the other forms of the disease, especially the tubercular and the dyspeptic varieties; nevertheless, it sometimes takes place without evidences of any considerable organic change either in the lungs or digestive organs, and recurs with such frequency and violence as to exhaust the patient, producing all the train of constitutional symptoms which marks the progress of the other varieties of consumption. It is intimately connected with the next variety—dyspeptic phthisis—and usually depends immediately on an excessively engorged condition and relaxation of the pulmonary vessels, this condition being chiefly owing to a shriveled, bloodless state of the superficial capillaries, or to an enlarged liver, or, which is more common still, to both of these circumstances combined.

Dyspeptic phthisis is that form of pulmonary consumption which is preceded by protracted disease of the digestive organs; the lungs are affected sympathetically, or, rather, the morbid condition is extended from the abdominal viscera to the lungs; the liver being usually the organ most concerned in the primary malady. This variety of consumption is more common than is generally supposed, constituting, in fact, a majority of the cases we meet with. It is seldom correctly diagnosticated, from the fact that, when the lungs become prominently the seat of the morbid phenomena, the prior evidences of digestive derangement, or disease of the liver, are overlooked; very often the latter are so obscure as to be wholly disregarded, unless the physician discovers their relation to the affected lungs by a careful investigation of the history of the patient, from the first appearance of ill-health. Dr. Wilson Phillip says that drunkards, whose digestive powers have been broken down by ardent spirits, frequently fall a sacrifice to this disease; and he regards those who have suffered severe attacks of dyspepsia, and what are called bilious complaints, as peculiarly liable to dyspeptic consumption.

Diagnosis.—As it is only in the incipient stage of all forms of consumption that we can have any reasonable assurance of effecting a radical cure, it becomes exceedingly important to detect the malady before it has made irremediable advances. It is impossible to give a list of symptoms which may be relied upon as pathognomonic. Whenever the patient experiences habitual cough, be it ever so slight, and habitual expectoration, of whatever character, with shortness of breath, a sense of pain, fullness, weight, or uneasiness in the chest, with an increasing feeling of general languor or debility, the case is *probably* consumption, and should thenceforth receive the closest scrutiny. If

these symptoms have been preceded by dyspeptic indications, or evidences of disordered or torpid liver, the danger is greater; and if the constitution is manifestly scrofulous, still greater apprehension may be entertained. In the early stage of the dyspeptic variety, the cough and expectoration occur chiefly in the morning, and are hardly noticed during the remainder of the day; the expectoration consists of a small quantity of tenacious mucus or muco-purulent matter, generally discolored in the morning by a carbonaceous, dark-colored stain, as though charcoal dust had been diffused through it.

The early symptoms in all forms of consumption are obscure and insidious; and those which attend its progress and mark its several stages are subject to very great diversity. But the general progress of the symptoms may be enumerated as follows: The patient first becomes sensible of unusual languor, and breathes with less than usual freedom; his respirations are shorter in duration and more frequent in number. He coughs occasionally, but does not complain of its being troublesome, and he very rarely expectorates when coughing. Some degree of pain, soreness, weight, or uneasiness, will be at this time experienced in some part of the chest whenever the patient makes a deep and prolonged inspiration. As these symptoms increase, the pulse becomes more frequent and weaker, particularly in the after part of the day. After the disease has made a little further progress, there is feverish feeling or hectic flush toward evening, a tendency to undue perspiration during the night, and either the sleep is disturbed by fits of coughing during the night, or a considerable paroxysm of coughing takes place early in the morning, leaving the patient with a greater feeling of feebleness and relaxation. This assemblage of symptoms may be considered as constituting the first stage.

In what may be regarded as the second stage, in which the disease is evidently established and generally hopeless, the cough increases in frequency, and, from being dry, is accompanied with a purulent mucus, varying from a watery whey-like matter occasionally tinged with blood, to an expectoration of genuine pus, which may be variously colored—livid, deep black, light brown, light green, bright or dark yellow, hard and lumpy, or soft and shredy, flattened or round, fetid or odorless. In many cases of the tubercular form it is very scanty, while in a majority of the catarrhal it is extremely copious. The uneasiness in the chest is now felt more constantly, and the sense of weight has become permanent; hectic fever is fully developed, and the breathing is often accompanied by a sound somewhat like the ticking of a watch. The strength fails rapidly, the body emaciates, the pulse beats more frequently and feebly, generally ranging from 100 to 130; yet in some

instances of the dyspeptic variety I have known the pulse to preserve the slow, languid motion characteristic of that form of digestive derangement in which torpor of the liver is a prominent condition, until the last. The teeth usually increase in transparency, and the eye manifests an unnatural brilliancy, the sclerotic coat becoming of a pearly white. The fingers are shrunk, except at the joints, which become prominent; the nails are bent for want of support; the nose is sharp; the eyes sunken; the countenance wears a peculiar but mortal smile; the whole body is shriveled; the spine projects, instead of sinking, from the decay of the muscles; and the shoulder-blades stand out like the wings of birds.

The third stage is attended with diarrhea, apthous or ulcerated throat, difficulty of swallowing, dropsical swellings in different parts of the body, and various other symptoms indicative of the final exhaustion of the powers of life.

Although extreme emaciation usually occurs before death, yet in a few cases, particularly in the apostematous variety—which is the form most frequently designated as the *quick* or *galloping* consumption—the progress of the local inflammation is so rapid, that the extensive disorganization of the pulmonary structure produces a fatal result before the body is greatly attenuated. In a few instances recoveries have happened after extensive vomica, or abscesses, have been formed in the substance of the lungs; and a very few examples are recorded in which the patient has survived the entire destruction of one lung.

Pathological Appearances.—Dissections, which do not prove the *nature* but the *effects* of disease, show, in almost all cases, an indurated and ulcerated condition of the lungs. Tubercles are formed indiscriminately in all parts of the cellular texture of the lungs, but more frequently and abundantly at its upper and posterior parts. They exhibit every diversity of size; are generally whitish and opake, like small absorbent glands, but sometimes semi-transparent, like cartilage, with black dots in their substance. They often augment by degrees till they attain half an inch in diameter; but usually, when about as large as peas, they begin to soften in the center, and finally open by one or more small apertures into the neighboring bronchiæ, or remain for a longer time closed, and constitute small abscesses, filled with a curdy, half-formed pus. In some cases largo abscesses are formed, without any trace of tubercles; in a few cases the lungs appear hardened, hepatized, or shriveled into a leathery appearance; and occasionally the whole cellular substance is occupied by tubercles, with little appearance of excavations or open ulcers.

Physiological Signs.—Much attention has, of late years, been be-

stowed upon *percussion* and *auscultation* as means for ascertaining the exact morbid conditions or structural derangements of the thoracic viscera and the *stethescope*, invented by Laennec, has come into very general use, as a convenient acoustic instrument for the purpose of determining, with greater precision, the abnormal changes which take place in the lungs. There is no doubt that, by much experience, the practitioner can, in many cases, decide with much greater accuracy as to the exact point of the lungs most diseased, and, possibly, as to the extent in which the disease has involved the lungs in disorganization, with the aid afforded by a careful stethescopic examination; yet, on the whole, I regard the instrument as of very little practical value. So far as the prospect of cure and the proper course of medication are concerned, the intelligent physician can derive no advantage from the stethescope; and even experienced practitioners are about as liable to diagnosticate erroneously with as without its assistance. I can name at least one person in the city of New York whose lungs were pronounced incurably tuberculated by an experienced professor of stethoscopy, who is now in the enjoyment of excellent health.

Special Considerations.—Consumption has been regarded as contagious by some. There is no question that all diseases have a tendency to propagate their kind—like *causes* like—yet this disease is not more chargeable with "personal communicability" than a majority of others. It may, indeed—and I have known such instances—be *acquired* by a vigorous, healthy person, who has no hereditary predisposition, by a long and intimate intercourse with, or attendance upon, a patient who has declined under it; as, for example, a husband or wife, devoting himself or herself assiduously to the care of a bosom compauion through all the stages of the malady, occupying the same room, sleeping in the same bed, and personally performing all the acts of kindness and duty required by the patient's condition, may in time become similarly affected. It has been remarked by most authors that any suddenly suppressed evacuation or accustomed discharge, is peculiarly liable, especially when a predisposition exists, to induce consumption. I think, however, all the danger from this source could be obviated by a proper attention to the general health. A suppression of the menstrual secretion in females is supposed peculiarly to conduce to the formation of a consumptive diathesis; but more generally the suppression follows as a consequence of prior disease of the lungs. Pregnancy often arrests the progress of the disease, even when far advanced; but it recurs in all its force soon after the function of gestation is completed.

Treatment.—It is the common consent of the medical world that consumption is incurable, especially in all stages after the first; and

those few examples of cures recorded in medical works have confessedly recovered "spontaneously," or by "the efforts of nature," at all events, without the benefits of drug-medication. Under water-treatment some cures of apparently hopeless cases have been made; the majority, however, who have thus far sought the aid of the new system have deferred it too long, yet, although they have necessarily failed of being radically cured, they have, in nearly all instances, been greatly benefitted, while in many cases life has been extended for several years.

Practically, we are to regard the affection of the lungs as a local expression of a general disease; hence the constitutional management is of incomparably more importance than the topical. Every measure which tends to invigorate the general system, and every appliance which will conduce to a more free expansion of the lungs, and assist in relieving their congested condition by diffusing the accumulated blood over the surface, must be perseveringly employed; while, negatively, all sources of irritation and debility must be sedulously avoided. Instead of bundling up in flannels, and sitting down by a hot stove, or lounging in a warm room, the patient must dress as lightly as possible without actual discomfort; he must take as much out-door exercise as his strength will permit, and spend as much of his time in the open air—in walking, riding, sailing, etc.—as possible, without exhausting fatigue. Horseback exercise, I think, is not advisable after the disease is fairly formed, the other kinds being altogether preferable. High mountainous regions are certainly preferable to low lands for consumptives, the air being not only more dense but more pure. A residence inland, and a voyage at sea, are both preferable to a residence on the sea-shore, in a case of confirmed consumption, for the reason that there is less uniformity of climate and temperature in the latter locality than in either of the other situations. A removal to warmer and more equable climates—Florida, Cuba, Madeira, etc.—is not necessary to the cure of the malady. In some cases, however, it seems to stay its progress, while in others the change hurries it on rapidly to a fatal termination. Medical authors wholly fail to account for these diverse results. The explanation is probably this: Of those who go to the South, or to more genial latitudes, some are affected with primary disease of the liver and digestive organs, the lungs being secondarily or sympathetically diseased; while in others the lungs were the organs primarily affected with local disease. The former will decline with greatly accelerated speed on going to a much warmer latitude, but the latter will generally experience a temporary alleviation of symptoms.

A great variety of muscular or gymnastic exercises can be employed to advantage in expanding the chest Striking the elbows or backs of

the hands together behind the back; making gentle circular motions with the hands while both arms are extended laterally from the body; striking the hands out laterally alternately, etc., are useful methods. The body must always be kept in the erect posture whether exercising or at rest, sleeping or waking. One of the very best respiratory exercises is that of taking slow, deep, full inspirations, holding the breath as long as convenient when the lungs are fully inflated, and then expiring very slowly; this may be practiced a few minutes at a time, and repeated many times a day. Silver tubes have been constructed to assist the consumptive in expanding the lungs in this way, and in many cases very great benefit has been derived from them; still they are no better than a common goose-quill, nor have either any advantage over the practice of respiring through the nose in the same slow, regular manner. Let it be remembered, that in all kinds of exercises care must be taken not to greatly disturb the breathing or accelerate the pulse. Within this limitation they should be as frequent and active as possible. Dumb-bells afford a good exercise, but they must be handled gently, and not be very heavy. The play of *graces* is also excellent.

With regard to diet, no disease, not even dyspepsia, requires a more rigidly plain and abstemious course. The general plan of dieting is the same as in cases of dyspepsia. But the irritable state of the general system, coupled with the inflammatory condition of the lungs, causes the most trifling disturbance in the digestive organs to result in a much more serious injury to the lungs. I have repeatedly seen all the symptoms severely aggravated, the expectoration entirely changed for the worse in character, the cough greatly intensified, and all the advantage gained by a month's faithful treatment lost by a single injudicious meal. Consumptives labor under one disadvantage which dyspeptics do not in the matter of dieting. The latter feel whatever hurts them in the stomach, and hence in their feelings have a better guide to direct them in the choice of food, or rather in respect to what may be profitably abstained from. The former have the sensibility and irritability more concentrated upon the lungs, and frequently have no other evidence of what agrees or disagrees with the stomach than the better or worse character of the pulmonary symptoms. Experience, therefore, is, with the consumptive, a more blind guide than with the dyspeptic. Judgment must reign supreme here, and appetite and morbid sensibility obey.

For these reasons the diet may be, and, on the whole, should be, more bland, watery, and innutritious than is tolerated in the majority of cases of dyspepsia. I believe nearly every case will do better by entirely abandoning all animal food, save milk, and even this should be used as

a seasoning rather than as a substantial part of the meal. Coarse bread, wheaten grits, the mildest vegetables and best fruits, constitute the best articles of food, and a sufficient variety, as far as the question of recovery is concerned; and even this simplicity will avail nothing unless strict moderation in quantity is at all times observed. In many cases, and in all in which I have advised the experiment, the patient has been evidently advantaged by taking a very light breakfast, a moderate dinner, and no supper at all. The oppressed lungs require all the room and all the quiet possible to obtain during sleep; and a trifling load or irritation in the stomach will often produce a restless night, and a more engorged condition of the lungs.

In all cases except those attended with considerable emaciation and severe dyspeptic symptoms, rather free water-drinking is advisable; not, however, to the extent of sensibly oppressing the stomach. From five to ten tumblers can usually be taken daily to advantage.

In regulating the bathing processes, we must keep in view a threefold condition—general debility, feverish excitement, and local inflammation. Consumptives generally bear cold bathing well, but the baths should seldom be very long continued. When the superficial heat is not materially deficient, nor the hands and feet inclined to much coldness, the cold wet-sheet pack for an hour, followed by the tepid shallow bath, for five minutes; the half-bath at 72°, five to ten minutes, and the hip-bath at about 65°, fifteen minutes, with the constant employment of the chest-wrapper, constitute a plan of bathing which, with such modifications as will be suggested by individual circumstances, is adapted to the majority of cases. The walking foot-bath I have known peculiarly serviceable in several cases. The douche, of moderate force, is a useful adjunct in the early stage of the tubercular variety; and in the incipient stage of all forms, I have observed manifest relief of the local symptoms by the spray or fountain applied to the chest daily, or every other day. In the latter stages, when the patient is troubled with rigors or chills, the dry pack, during the cold stage, will usually shorten the duration of the chills, and mitigate their severity. Night sweats may be checked or palliated by the rubbing wet-sheet at bed-time, if the patient is able to bear it, if not, by sponging the surface with tepid water.

When extensive ulceration or tuberculation exists in the lungs, the patient will be extremely sensitive to cold, and the temperature of the water should be milder; care should be taken, under these circumstances, to avoid any bath which occasions much of a shock to the system.

For the benefit of such consumptives as are compelled to do the

best they can with home-treatment, it may be stated that very little bathing is absolutely essential, if the patient will attend strictly to all the other resources of hygiene. One or two sponge-baths or towel-washings daily, and one or two sitz-baths, with the employment of the chest-wrapper or abdominal girdle, as the local symptoms are more prominent in the respiratory or digestive organs, all of which processes the patient can manage with very little assistance, will answer all remedial purposes, provided the patient keeps in the open air as much as possible, takes almost constant but not violent exercises, according to his strength, and lives on the smallest quantity of coarse, bland food, which will range above starvation.

I cannot conclude this topic without a paragraph of animadversion upon the popular allopathic method of doctoring consumptives. I have known so many scores of persons *killed outright*, so many cases of incipient converted into confirmed consumption, and so many confirmed consumptives hurried out of the world, by drug-medication, that I cannot speak or write on the subject, except with language of earnest denunciation against the senseless and murderous practice of reducing and poisoning the systems of those unfortunate invalids, whose vital powers are wasting fast enough without being aided by "medical science." The ordinary treatment may be resolved, substantially, into opium, bleeding antimony, blisters, and expectorants. Each article and each process, I affirm, is individually injurious, and all are collectively pernicious. The opium lessens the effort at coughing, by which the lungs endeavor to free themselves of a morbid secretion, but aggravates the actual diseased condition of the lungs. The bleeding lessens the patient's sensibility —feeling—for a brief period, and renders him less conscious of his disease; but it is at the expense of his vitality. The antimony lessens the febrile excitement, and diminishes the force of the circulation by deadening the nervous influence, and destroying the ability of the muscular fibres to act at all. The blisters abate the pain and soreness in the lungs by paralyzing the natural sensibility, or overwhelming the lesser with a greater pain; but they render the intercostal muscles sore and sensitive, make a free expansion of the lungs more painful and more difficult, and thus tend to fasten the disease irrecoverably upon the system. Expectorants, which are given to facilitate the excretion from the bronchial ramifications, make the patient raise easy by increasing the quantity to be raised; and as the secretion of mucus, or pus, is already morbid and in excess, there can be no possible ultimate advantage in increasing it. I know very well the theories—and they are quite "too numerous to mention"—upon which such practice is advocated and defended; but they are as absurd and irrational as the

practice is unsuccessful and death-dealing. Of the lengthy catalogue of specifics which have had and still have a reputation in the medical world for curing consumption—digitalis, cod-liver oil, etc.—I need not speak. If the fact that all the patients who are *cured* by them soon go to their graves, is not a sufficient commentary, and if the forty or fifty deaths in the city of New York returned weekly to the inspector's office by the physicians under the head of consumption, do not sufficiently attest the fallacy and falsity of the popular theory and practice, as far as this malady is concerned, no explanation that I could offer would be of any avail.

Marasmus.—A morbid condition, of which general emaciation of the body, with debility, without local inflammation or other disproportionate affection of any particular organ or viscus, has long been recognized by physicians under the generic term *marasmus*. "Leanness," says Dr. Good, "is not necessarily a disease; for many persons who are peculiarly lean are peculiarly healthy." It is only when increasing debility accompanies gradual emaciation that the extenuation of the system is to be regarded as abnormal. The proximate condition upon which all the varieties of marasmus depends, is bloodlessness. The manufacture and supply of nutrient material is not equal to the waste, and this implies a primary fault in the digestive or assimilating functions, or obstruction in the capillaries.

Symptoms.—In the first variety—*atrophy*—the complexion is pale, often squalid; skin dry and wrinkled; muscles shrunk and inelastic; the appetite is feeble or capricious; there is little or no fever. With infants or young children the above symptoms are preceded by flaccidity of the flesh, bloated prominence of the abdomen, irregularity of the bowels, and pendulousness of the lower limbs. To these symptoms succeed drowsiness and languor, chilliness in the morning, flushed cheeks, restlessness and general feverishness toward evening; the urine is scanty, the fæces dark, green, or pitchy, and highly offensive; the skin is hot, dry, and extremely irritable, and the child is constantly picking the nose, lips, corners of the eyes, fingers, and anus. This form of marasmus has been variously termed, in medical books: *infantile remittent fever, gastric remittent, infantile hectic, worm fever, mesenteric fever, stomach fever, low fever of children*, etc.

In the second variety—*anhæmia, anæmia, exsanguinity*—the whole surface, and particularly the face and lips, are ghastly pale; pulse frequent and feeble; dejections from the bowels irregular, black, and fetid; appetite greatly impaired; emaciation and debility extreme.

The third variety—*climacteric*—has been called, very incorrectly,

decay of nature. The term adopted is derived from the Greek physiologists, who divided the period of life into five epochs or climaxes, at each of which they supposed the body was peculiarly liable to some remarkable and sudden alteration for better or worse. It is characterized by general decline of bulk and strength, with occasional renovation, subsequent to the middle period of life, without any manifest local disease.

The fourth variety—*tabes*—has been known by the simple appellation, *decline*; it is distinguished from atrophy by the presence of hectic fever. It appears at any age of life, and is also characterized by the accompaniment of depressed spirits. It is the consequence of some lurking poison in the system, generally of a scrofulous or syphilitic character, or of excess or intemperance in the exercise of the animal propensities, or indulgence of the passions. When occurring from undue indulgence in libidinous pleasures, it has been called *tabes dorsalis*, from the great weakness which is experienced in the back and loins. The habit of self-pollution often induces this malady in boys and girls, and sometimes even before the age of puberty.

Special Causes.—Scarcity of food; improper aliment, as baker's sweet-cake, and distillery milk; profuse evacuations; scrofulous, scorbutic, or syphilitic taint; mineral drugs, as mercury, antimony, nitre, and potash; acrid narcotics and debilitating sedatives, as opium, alcohol, tobacco, digitalis, iodine, hydriodate of potassa; antiphlogistic medicines, as salts, vinegar, colchicum; irritant drugs, as aloes, preparations of iron, nitrate of silver, arsenic; cold, damp, and impure air, as found in low basements, dark cellars, subterranean tenements, rear buildings; depressing mental influences, as the loss of friends, or reverses of fortune; violent passions; venereal excesses.

Treatment.—In every case of genuine marasmus, the grand morbid condition is deficient circulation in the capillary system. Whether the nutritive functions are abnormally torpid, or the excretory organs preternaturally active, or whether the functions of supply and waste are both morbidly affected, the single indication of cure is the same—to augment capillary circulation. Of course, all the causes which are operating to produce or continue the malady are to be sought out and removed or counteracted, and all the resources of hygiene are to be applied to the general invigoration of all the organic functions; but the bathing appliances are few and simple. The dripping wet-sheet or towel-wash, and the half or shallow-bath daily, followed by as much friction or rubbing over the dry sheet as the patient can well bear, are the best water-processes, and in most cases all that are necessary. The temperature is a matter of considerable importance. It should be as

cold as is consistent with prompt reaction; the proper rule, as in all cases of feeble circulation, is to begin with water of a comfortable temperature, say about 80°, and very gradually reduce it as the patient becomes accustomed to the impressions. For very feeble patients one bath daily may be sufficient to commence with; and such should take frequent exercise in the open air, by riding in a carriage if unable to walk. With regard to water-drinking and diet, the rules often heretofore intimated are to be observed. In most cases the strict or dry diet is the most desirable.

The allopathic treatment consists mainly of stimulating food, as flesh-meat, soups, broths, etc., and irritating drugs, particularly the different preparations of iron; and although almost every author of that school coincides in this plan of treatment as the only one to be relied upon, yet almost every case on record so treated resulted in death! The form of this disease called *anhæmia* has lately attracted considerable attention in the medical profession because of its frequent occurrence in women soon after childbirth. One of the allopathic journals, a few months ago, related the particulars of six cases, all of which went down to death rapidly under the "tonic" and "supporting" system of iron and wine; and concluded the sad story of mortality with an "able argument" in favor of the same treatment as the only hope of the patient!

ELEPHANTIASIS.—This affection, called in English *elephant skin*, consists of a thick, livid, rugose, tuberculated, and insensible state of the skin. It is attended with great debility, and a variety of morbid symptoms, the sum total of which evince a general depravation of all the fluids of the body. Among the most prominent of these are remarked, highly offensive perspiration, and fierce, staring eyes.

The first variety—*Arabian—black leprosy*—is hereditary in Arabia and India, and is in those countries regarded as contagious. It is also known in the high northern latitudes of Norway, and is very prevalent in Iceland. The tubercles are chiefly confined to the face and joints; the voice is hoarse and nasal; the hair, except on the head, falls off; the nose is swelled and scabrous; the lips tumid; the nostrils preternaturally dilated; the lobes of the ears are enlarged and thickened, and beset with tubercles; the external sensibility is so obtunded that pinching or puncturing the skin occasions no pain. At length the tubercles crack and ulcerate; ulcerations also appear in the throat and nostrils; the breath becomes intolerably fetid; the nose falls off; the palate is destroyed; the fingers and toes become gangrenous, and drop off one after another.

The *Italian* variety is found chiefly among the Milanese and Venetian peasantry, who live in wretched hovels, breathe foul air, and eat gross and unwholesome food. The disease comes on with languor, listlessness, gloom, weakness and stupor in the lower extremities, vertigo, mental confusion, etc. These symptoms, which usually occur in the spring, are followed, as the warm weather increases, with burning and itching over the whole surface, except that of the head, and these are succeeded by an eruption of rosy papulæ, scattered generally over the skin, and terminating in tubercles of a shining red color. During the summer the tubercles desquamate, and the skin finally recovers its natural color. In the winter the patient recovers some degree of strength, but the symptoms reappear with increased violence with the return of spring, and again subside on the recurrence of cold weather, and so on for several years in succession. In the end, delirium, furious mania, or stupid melancholy, diarrhea, and dropsy come on, and not unfrequently the miserable victim terminates his sufferings by the act of suicide.

The variety called *Asturian*, is the *Asturian leprosy* of Sauvages, and some other nosologists, and the *mal de la rosa* of the Spaniards. It is found among those who inhabit filthy tenements, crowded, unventilated rooms, swampy valleys, etc. It differs from the preceding variety in attacking the head as well as the other parts of the body; the tubercles are peculiarly painful, highly fetid, more deeply furrowed with cracks, and more disgusting to the sight.

Treatment.—Cleanliness, in the broadest acceptation of the word, comprises the whole remedial course. Frequent cool or tepid bathing or washing of the whole surface, copious water-drinking, and a dietary restricted to plain vegetables, fruits, and farinacea, are all the details which need occupy these pages.

Hemorrhage.—Occasional or accidental hemorrhages occur in a great variety of diseases, not connected with any general taint or depravation of the organism. But it is only when bleeding results from an impaired or partially putrescent quality of the blood itself, or from a debility and relaxation of the coats of its containing vessels, or from both of these conditions together, constituting the hemorrhagic diathesis, that the affection properly pertains to the genus before us. A flow of blood from the nose, lungs, stomach, bladder, uterus, or anus, may result from local congestion or incidental plethora—constituting the *entonic* hemorrhages of Dr. Good—and either of these conditions may depend on temporary or occasional causes; the group of diseases, therefore, included in the present genus, comprises only the *atonic*

hemorrhages of authors. When the hemorrhagic diathesis has become established, nose bleeding is most common during the periods of youth and of senescence; bleeding from the lungs occurs most frequently between the ages of fifteen and thirty-five; and in more advanced life the tendency is to more frequent hemorrhages from the abdominal and pelvic organs.

In the first variety—*epistaxis—nose-bleeding*—the quantity of blood lost is, in some instances, enormous. Examples are recorded of its continuance for several days, and even weeks, of the quantity of blood discharged amounting to ten, twenty, and even forty pounds.

In the second variety—*hæmoptysis—spitting of blood—bleeding from the lungs*—it is often difficult to determine from whence the blood issues; whether from the fauces, posterior cavities of the nostrils, the lungs, or the stomach. In hæmoptysis the blood is thrown up chiefly by coughing; the blood is of a florid, arterial hue; there is a sense of tickling about the fauces; moreover, it is usually preceded by flushed cheeks, more or less pain in the chest, with some degree of dyspnœa. Sometimes, however, there are no precursive symptoms, and the blood is rather hawked or spit up intermixed more or less with saliva, and is of a darker color; but in this case an irritative cough ensues, and the blood is mingled with a frothy mucus. When the spitting of blood is from the cavities of the nostrils, it will cease on lying procumbent, or bending the head forward, and will then probably flow from the nose. When it proceeds from the fauces, the fact can generally be ascertained by ocular inspection.

In *hæmatemesis—vomiting of blood—bleeding from the stomach*—the blood is of a dark color, is thrown up by vomiting, and is usually intermixed with food; the discharge is preceded by tensive pain about the stomach, and accompanied with anxiety and faintness. In some cases the blood is discharged from the bowels at the same time.

In *hæmaturia—bloody urine*—the hemorrhage is from the bladder or kidneys, and the blood is discharged at the urethra, sometimes intermixed with urine. The evacuation is preceded by pain in the pelvic region, and accompanied with faintness.

Uterine hemorrhage is called *menorrhagia* in most medical books, and described as an excess of the menstrual discharge. This is a mistake. It is not a profuse catamenial secretion, but an actual bleeding from the uterine vessels. In fact, it is always attended with a real deficiency of the menstrual flux. It sometimes occurs in young girls from habits of self-abuse; and is very liable to attack unhealthy females on the final cessation of the menses, and occasionally attacks females far advanced in life.

In *anal* hemorrhage the blood flows principally from the hemorrhoidal vessels; it is preceded by a sense of pain and weight in the rectum; and, when the patient is of rather full habit, by headache or vertigo.

Special Causes.—The ordinary exciting causes of disease, operating upon an exhausted or depraved organism, in which relaxation of the muscular coats of the capillary vessels in a prominent condition, may excite either form of hemorrhage we have considered, as the predisposition exists, more particularly in the organ or part which is the seat of it. All these varieties of hemorrhage are, however, very frequently the result of external violence, or symptomatic of other local affections, in which case the treatment is to be mainly directed to the primary malady. Thus epistaxis may be the result of exposure to the direct rays of the sun, sudden and severe cold in the head, violent coughing or sneezing, and various emotions of the mind; hæmoptysis occurs sometimes from an enlarged liver pressing against the lungs, suppressed perspiration, straining of the respiratory muscles, excess in eating and drinking, suppression of customary discharges, etc. Hæmatemesis is often the consequence of shocks, contusions, vomiting, pregnancy combined with constipation, violent passions, schirrus, or cancer of the stomach, etc. Hæmaturia results frequently from a blow or a fall, gravel, stone in the bladder, ulceration, severe inflammation, and the use of some kinds of irritant drugs, as cantharides. Uterine hemorrhage is occasionally caused by polypi in the womb, or other structural derangements; and anal hemorrhage is a very common symptom of hemorrhoidal tumors, or piles.

Treatment.—The indications are—to excite contraction in the bleeding vessels, balance the circulation, and invigorate the general system. Locally the coldest water, or pounded ice, may be employed, until the flow of blood is checked. For nose-bleeding, a cold stream or iced water may be applied to the back of the neck, and cold water frequently sniffed up the nostrils, at the same time the head should be freely exposed to the cool or cold air, and the bleeding part be kept entirely uncovered. In bleedings from the lungs and stomach, sips of the coldest water, or even bits of ice, may be occasionally swallowed, while the coldest compresses are applied over the stomach and chest. In bleedings from the urethra and rectum, cold injections and cold hip-baths are the local appliances. In all cases the patient must keep quiet, and avoid any source of bodily or mental excitement; and if there is feverish heat or inflammatory excitement, the whole body must be promptly cooled with the dripping-sheet or ablution. When the extremities are preternaturally cold, rubbing them thoroughly, first

with cold wet cloths and then with dry flannel, is advisable. To accomplish the third indication, we must pursue the appropriate management for the restoration of general health.

Scurvy.—Dr. Good defines the general symptoms of the scurvy—*scorbutus*—"livid spots on the skin from extravasated blood; languor, and loss of muscular strength pains in the limbs."

The first variety, *simple* or *petechial* scurvy, is almost always a sequel of protracted and debilitating fevers, especially of the putrid type. Rarely, however, it occurs in persons of a gross and full habit, who are not regardful of hygiene in their personal habits. It is characterized by numerous small spots resembling flea-bites, chiefly on the breast, arms, and legs; the visage is also pale.

In the *hemorrhagic* variety—*land scurvy*—the spots are circular, of a purple hue, and of different sizes; sometimes in stripes or patches irregularly scattered over the arms, trunk, and thighs; occasionally there is hemorrhage from the mouth, nostrils, or viscera; and there is great debility and depression of spirits. In severe cases the patient has the bloodless, exhausted appearance observed in anhæmia; and blood flows irregularly and often profusely from the lungs, stomach, intestines, and uterus, as well as from the mouth and nostrils.

In the *nautical* variety—*sea scurvy*—the spots are of different hues intermixed with livid, principally at the roots of the hairs; the teeth are loose; the gums are spongy and bleeding; the breath is very fetid, and the debility is extreme. The joints soon become weak, and there is often a shrinking of the flexor muscles, rendering the limbs useless, and constituting what has been called *scorbutic paralysis*. The spots often coalesce in large blotches, or form ulcers, which discharge a thin, fetid, sanious fluid, mixed with blood; and in the last stage blood is discharged from the viscera as in the former variety.

Special Causes.—Stale food, salted provisions, an exclusive flesh-meat diet, and vitiated air, are the ordinary producing causes; they are almost always associated with inattention to personal cleanliness. Either one of these causes alone may produce a modified form of scurvy, but all operating together generate the most aggravated cases.

Treatment.—The proximate condition upon which this disease depends is a putrescent state of the blood. The indication of cure is, therefore, simply, to purify the blood; and a moderate course of general bathing, with a liberal supply of fresh vegetable and farinaceous food, and plenty of good ripe fruit, will answer the indication. On account of the extreme laxity and debility, the tepid half-bath, and dripping-sheet, or towel-wash, are the preferable water appliances Small

quantities of very cold water should be frequently taken into the stomach, and when the disposition to hemorrhage is great, cold water enema should be occasionally employed. Brown bread, wheaten grits, mealy potatoes, and good apples, are the best *antiscorbutics* known.

Plethora.—The condition of the body to which nosologists have applied this term, is that of general engorgement or over-fullness; it is the result of excessive alimentation, or defective depuration, or both. Full-feeding and inactivity are the producing causes.

The *sanguine*, or *entonic* variety, is distinguished by florid skin, full strong pulse, turgid veins, with firm and vigorous muscular fibres; and the *serous*, or *atonic*, is denoted by a full but frequent and feeble pulse, smooth and soft skin, plump but inexpressive figure, and general languor or debility of the vital functions

Treatment.—The remedial measure of first importance is active out-door exercise. This may be commenced gently, and gradually increased; but it should always be to the utmost extent of the patient's capacity to endure, short of excessive fatigue. It is of little consequence what the kind of exercise is, if it is sufficient in constancy and degree. The next matter requiring attention is the food; this must be plain and coarse in quality, and in quantity no more than actual nutrition demands. A moderate course of the "starvation regimen" for a few weeks would accelerate the process of throwing off the superfluity, hardening the structures, and invigorating the general system. Lastly, the whole surface of the body should have one or two daily washings in cold water, followed by thorough friction with a coarse towel or the flesh brush.

Scrofula—Struma—Struma Vulgaris—Scorbutus—King's Evil.—The term scrofula—derived from *scrofus*, a sow—literally imports *swine-swellings*, *swine-evil*, or morbid tumors to which swine are subject. Scrofula has long been recognized as a disease common among swine, and it is doubtful if any of the domesticated swine are exempt from it. It is well known that all hogs fattened in the ordinary method are extensively diseased, and a source of disease to those who eat them. In this country the general employment of this filthy animal as food, is the cause of many morbid affections, manifested under a great variety of scrofulous, erysipelatous, putrid, glandular, and skin diseases.

The Scrofulous Diathesis.—A scrofulous constitution means simply, a frail, delicate, infirm, lax organization, a habit of body possessing a predisposition to the affection called scrofula, and peculiarly liable to develop glandular swellings, chronic ulcerations, tubercular formations, and vis

ceral enlargements, whenever the exciting causes of disease are applied with ordinary intensity. The predisposition, however, under favorable hygienic influences, may lay dormant through life, and only be called into activity in the succeeding generation. The scrofulous constitution is said to be characterized by relaxed fibres, smooth and soft skin, fair and fine hair, a peculiar fullness and rosy appearance of the face, full upper lip, tumid alæ nasi, large eyes, long silky eyelashes, delicate complexion, large head, precocious brain, great sprightliness with feeble endurance. But it must be remembered that this description applies only to extreme cases, or an inherited diathesis. The most usual pathological indications of the scrofulous habit are, strumous ophthalmia, chronic inflammation and suppuration of the glands of the neck, porriginous affections of the scalp, enlarged tonsils, rickets, spinal diseases, tabes mesenterica, white swellings, inflammation of the membranes of the brain, and tubercular consumption.

Symptoms.—The most common form of the disease—that form known as scrofula proper—appears in indolent glandular tumors, frequently in the lymphatics of the neck, but also often affecting the external or internal conglobate glands, suppurating slowly and imperfectly, and healing with difficulty. In size these tumors usually range from that of a pea to that of a chestnut, but occasionally they are much larger. In some instances, scrofulous tumors appear in clusters about the neck, and armpit, and upon the breast. Usually the tumors which appear in infancy subside at the period of maturity. Scrofulous inflammation frequently attacks the external structures of the eye, the spongy, and sometimes the cylindrical bones, and the ligaments, cartilages, and membranes around the joints.

Special Causes.—Whatever deteriorates the general health tends to bring the scrofulous predisposition into a state of activity. Various forms of scrofulous disease frequently follow severe febrile and obstinate cutaneous affections, as measles, small-pox, scarlatina, yaws, syphilis, etc., and are then usually ranked among the sequelæ of those diseases. I think they are much oftener a result of the drug-medication. All mineral drugs, and particularly mercury and antimony, which are so freely prescribed in all the above diseases, have a powerful influence in exciting inflammatory action and tubercular depositions in scrofulous constitutions. Narcotic medicines, as opium, tobacco, alcohol, etc., are also efficient exciting causes. The depressing antiphlogistics—vegetable, earthy, or saline—as digitalis, senna, potassa, nitre, epsom salts, etc., and all debilitating processes, as bleeding, leeching, cauterization, profuse evacuations, etc., tend to produce a scrofulous diathesis where it did not previously exist, and aggravate it when already existent. The

scrofulous diathesis may therefore be either inherited or ingenerated. A combination of bad food, impure water, foul air, dark tenements, sedentary occupation, and poisonous drugs, is sufficient to produce the scrofulous diathesis independent of any hereditary taint.

Treatment.—The disease before us being one of debility and obstruction, invigoration and purification constitute the indications of cure. And first among the restorative resources of hygiene are abundance of pure fresh air, and plenty of clear sunlight. Sunshine itself is better than all the tonics of the allopathist's materia medica. The food must be restricted to the best fruits, vegetables, and farinaceous preparations, but allowed in liberal abundance. For city children good country milk is essential. The distillery slop-milk, on which so many thousands of our infantile population are daily fed, is a fruitful and frightful source of scrofulous affections, as well as other fatal diseases. Scrofulous patients should, as a general rule, drink water rather freely, especially in the fore part of the day. Generally one or two full baths—tepid, cool, or cold, according to the debility or inflammatory action existing—daily are sufficient. Wet compresses should be constantly applied to the tumors so long as they manifest preternatural heat, redness, or pain; and the wet-sheet pack, followed by the dripping-sheet or half-bath, should be employed daily whenever the whole body is feverish, and once or twice a week during the whole course of treatment; a moderate douche may be occasionally applied along the spine to advantage; and when the body evinces symptoms of general obstruction, torpor, over-fullness, and turgescence, moderate sweating in the dry blanket will be serviceable. Critical boils, eruptions, and abscesses are very common under active treatment.

Cancer—Carcinus—Carcinoma.—The Greek word, carcinus, means a crab; and the disease is thus named from the crab-like ramifications of the dark distended veins of the cancerous tumor. Any part of the body may become the seat of this affection, although secernent glands are most frequently attacked. The breasts of females, uterus, testes, glans, penis, tongue, stomach, cheeks, lips, and angles of the mouth, are its chief localities. The cancerous diathesis, like the scrofulous, may be either inherited or acquired, and, notwithstanding many nosologists have regarded this disease as a purely local one, the majority now assent to the doctrine that the topical affection depends on a peculiar constitutional distemper, taint, or malassimilation.

Symptoms.—A cancer commences with a hard, livid, knotty tumor, with dark, cancriform varices, intersected with firm, whitish, divergent

bands; it is attended with acute, burning, lancinating pains, and terminates in a fetid, ichorous ulcer, having thick, livid, distorted lips.

In the breast, the first appearance of the disease is a small indolent tumor, which is attended with an itching feeling; this is followed, after a longer or shorter time, by a pricking sensation, and this is succeeded by a shooting or lancinating pain eventually a sense of burning is experienced, and the skin becomes livid and discolored. Adhesive bands are formed in the skin, which becomes puckered, and the nipple is drawn inward, sometimes entirely disappearing; the tumor ere long becomes more elevated, and feels knotty to the finger; at length the ulcerative process appears by the integument giving way at different points, through which an ichorous, erosive fluid, sometimes tinged with blood, is thrown forth; as the ulcerative action advances, a broad, deep excavation is made, which discharges a most offensive and fetid matter.

Cancer of the uterus is known by darting pains in the part, shooting through the region of the pelvis, and usually indurations in the part, which are sensible to the touch; a preceding and immoderate menstrual or leucorrheal discharge, or both; and as soon as ulceration occurs there is a sanious, bloody, or mixed discharge, characterized by the peculiar stench of the disease.

In the vagina and rectum the disease can be ascertained by the touch, in connection with the other symptoms; in the mouth, and on various parts of the external surface it is obvious to the sight.

In the stomach it is with difficulty diagnosticated. An acute and burning pain, tenderness of the epigastrium on pressure, nausea, rejection of food, offensive fetor in the breath, are together strongly presumptive, though not absolutely pathognomonic, of the disease.

Special Causes.—"Of the remote causes of cancer," says Dr. Good, "we know nothing." Other authors confess the same ignorance of the proximate cause, and of the nature of the cancerous diathesis. The most common of the exciting causes are, external injuries, as blows, depressing passions, spirituous liquors, narcotic medicines, gross, high-seasoned food, etc. That our friends, the allopathists, regard the disease as in some way or other dependent on or connected with a specific virus, is evident from the remedies which are put most prominently forward in their books. These are, arsenic, henbane, and nightshade—the first, a powerfully corrosive poison, and the last two, deadly narcotics. The utter confusion which reigns in the brains of medical book-makers concerning the real nature, causes, and proper medication of cancer, is evident enough from the following paragraph in relation to its treatment, found in Copland's Medical Dictionary. After enumerating two or three hundred *internal remedies*, all of which

have enjoyed a high reputation, but which cannot *now* be depended on, comprising, in fact, nearly all the strong, pungent, powerful, and poisonous drugs and chemicals of the apothecary shop, our author remarks:

"Of the numerous *external remedies* recommended at various periods, the preparations of arsenic and quicksilver, charcoal and carrot poultices; the mineral acids, particularly chlorine, hydro-chloric, and chloric acids; the chlorurets, and *many* of the metallic salts; camphor, the balsams, and the terebinthinate substances; ammoniacum, galbanum, and myrrh; and the *greater part* of the astringent, antiseptic, detergent, and stimulating vegetable medicines, have obtained a greater degree of reputation; and when *some of them are judiciously combined with one another, and with narcotics*, they are *deserving of notice* as discutients in the early stage of the disease, and as palliatives in its ulcerating state."

Treatment.—The constitutional treatment for cancer is essentially the same as for scrofula; and all that has been recommended for scrofula, in the matter of diet and regimen, is applicable here, with this exception—cancer requires even a more rigidly simple and a very abstemious diet. In this disease the "hunger-cure" is an indispensable auxiliary, or rather, perhaps, the leading remedial measure. Several cases are on record of foul, fungous, and cancerous tumors, which had resisted caustics and the knife, being cured by a simple and strict dietary. The celebrated Dr. Twitchell, of New Hampshire, was cured, a few years ago, of a malignant tumor of the lip, which had been extirpated once, and repeatedly cauterized in vain, by restricting himself to a diet of bread and cream, tho quantity being barely sufficient for necessary nutrition. Brown bread, parched corn, or other grain, with a moderate allowance of good fruit, and plenty of soft water for drink, constitute a dietary it would be difficult to improve upon. In all diseases connected with general depravity of the secretions, and in all cases where a strict diet is advisable, a good proportion of the food should be hard or solid, for the double purpose of insuring complete mastication and better guarding against excess in quantity. Medical authors of the old school are generally opposed to "low diet," in this disease; but with them low diet means slop food, and high, or "generous" diet implies stimulating or animal food. I am opposed to both of these plans, not only in this disease, but in all others.

Every measure which can in the least conduce to the general invigoration of the system, must be unremittingly employed. Abundance of fresh and pure out-door air is indispensable, and, as in scrofula, one, two, or three general baths may be employed daily. There is but little to choose between the different kinds of baths; the dripping-

sheet, half-bath, or plunge, as either is most agreeable to the patient's feelings. It is generally, however, important to deterge the skin thoroughly, and keep up a good degree of activity in the cutaneous excretory process, by occasional packings in the wet sheet, so managed as to produce moderate but not debilitating sweating; or, in very torpid invalids, the dry-packing, followed by the dripping-sheet, with very active friction, may be substituted.

The local treatment is a matter of more difficulty. Extirpation will generally succeed, if resorted to in the early stages, provided the general health has been judiciously cared for; but it unfortunately happens that the operation is not often resolved upon until structural disorganization has proceeded too far to render it available. There is no doubt that, in some cases in which the local affection is much more prominent than the constitutional, caustics, or rather, perhaps, chemical antidotes, have been successful. The matter of a cancerous growth, being an abnormal formation, can, without doubt, be acted upon and destroyed, and the peculiar action or secretion on which its existence depends arrested, by substances which will not act very injuriously on the healthy structures, nor materially interfere with the normal functions; but as yet we are ignorant of any such specifics or antidotes. The "cancer quacks," it is well known, use arsenic as the principal corrosive to eat away the diseased structures; but death often results from the absorption of the poison. Iodide of potassium, and nitrate of silver are reported, on good authority, to have, in a few instances, destroyed the cancerous ulcer, which did not subsequently reappear. Some vegetable powders, as bloodroot and blue cohosh, have had a similar reputation. It is certain, however, that all these preparations fail in a majority of cases, and an anti-cancerous remedy is yet a desideratum, if indeed it is a possibility. My friend and former patient, Dr. Schell, late of New Orleans, assures me that he is in possession of an antidotal preparation which operates destructively on the diseased parts, and correctively on the morbid action, without sensibly injuring the sound structures. As he is about to put the matter to a practical test on an extensive scale in this city, I need not dwell longer on the subject in this place, save to remark that Dr. S. is not one of the numerous professionable adventurers who are swarming in all our great cities, but a scientific, candid, and honorable physician. It is due, however, to him and to the subject to say, that he depends as much on constitutional as on local treatment, deeming the latter useless without attention to the general health, this attention to be in all respects strictly hydropathic.

I have not yet had an opportunity of testing *refrigeration*, or the

application of extreme cold to a cancerous tumor; but, judging theoretically, I should expect much benefit from it. It is always advantageous to keep the diseased part covered with wet compresses of as cold temperature as can be borne without increased pain; and I cannot help believing that actually freezing the part occasionally, by the application of refrigerating mixtures, is among our most promising topical appliances.

Melanosis.—The disease called *melanose*, or *black cancer*, consists in the formation of a morbid product of secretion, of a dark color, more or less inspissated, and staining or studding the organ or structure affected. Every part of the body is liable to these discolorations or tubercles, and sometimes all the structures are loaded with them. In the areolar texture the melanotic matter often accumulates in the cells, and forms tumors of various sizes.

Symptoms.—The color of melanosis varies from a dark yellow to brown, deep blue, approaching to black, and to complete black, which is the most common. The secretion is easily detected by its peculiar shades of color in any part or organ containing it, as the surrounding tissues are lighter colored, and form a remarkable contrast with it; it is usually of a pultaceous consistence, the tubercles pea-sized to walnut-sized, and scattered in groups; they are sometimes situated upon the surface, but more generally below it; an irritative fever, mostly of the hectic form, attends, and the patient experiences great debility. The secretion is nearly destitute of smell and taste; and as no vessels or nerves have ever been in it, the matter appears to be an unorganized deposit.

Prognosis.—Dr. Good remarks: "The cause, progress, and diagnosis, are at present obscure and unsatisfactory, and the treatment is yet to be learned." The majority of cases have thus far, under allopathic treatment, terminated fatally.

Treatment.—This need not detain us. The cure depends on restoring the normal condition of the secernent system, and this presupposes the employment of all the means for invigorating the general system and purifying the circulating fluids, which have been detailed under preceding heads, more especially when treating of scurvy, scrofula, and cancer.

Catacausis.—This is a condition of general combustibility of the body, produced by the use of alcoholic drinks. Examples of spontaneous combustion as having occurred in persons long accustomed to the immoderate employment of spirituous liquors, are too well authen-

ticated to be longer doubted. The condition of body liable to this strange phenomenon may properly be called the *alcoholic diathesis*. In a majority of cases recorded, females advanced in life were the subjects of the malady. In some cases the self-consuming flame has arisen without any obvious exciting cause; but in others, a fire, a lighted candle, the heat of a stove, or an electric spark, has ignited the inebriate body. It is a remarkable fact that the flame which decomposes and reduces every fragment of the bodily structure to ashes, does not essentially injure the common furniture or bedding with which it comes in contact; and more marvelous still is the statement that water, instead of quenching the fire, seems rather to quicken it. As this is the only morbid condition known which renders the human body combustible, and the only morbid fire which hydropathy cannot extinguish, the subject need not be further prosecuted, save to point the obvious moral for the benefit of whom it may concern—that all spirit-drinkers burn, and mar, and disorganize their structures in an exact ratio to the amount of alcohol they consume, even if the alcohol does not consume them by a spontaneous, ingenerated fire in return.

CHAPTER VII.

DISEASES OF THE EYE.

THE morbid conditions of the visual organ requiring attention in this place may be arranged as in the following table:

- Ophthalmia: Acute, Chronic, Purulent, Infantile, Granulated.
- Structural Derangements affecting the Sight: Nebulæ, Ulcers, Pterygium, Staphyloma, Closed Pupil, Cataract, Amaurosis, Strabismus.
- Structural Affections of the Eyelids: Psorophthalmia, Trichiasis, Entropium, Ectropium, Hordeolum, Excrescences, Ptosis, Fistula Lachrymalis.
- Perverted States of Vision: Asthenopia, Hemeralopia, Nyctalopia, Myopia, Presbyopia.
- Injuries and Accidents: Ecchymosis, Extraneous Substances, Burst Eye.

The most common morbid affection of the eye is inflammation. It

may attack any of its structures, but is most frequently seen in the membrane covering the external coat constituting the *ophthalmia proper*, or *ophthalmitis* of authors. *Sclerotitis*, *iritis*, *retinitis*, etc., designate, in technical Latin, inflammatory states of the sclerotic, iris, retina, etc. As they should all be treated precisely in the same manner as acute or chronic ophthalmia, as the violence or mildness of their symptoms approximates the character of either, they need not be separately considered.

Acute Ophthalmia.—This is the common form of active inflammation. It commences with a pricking sensation, as though dust was in the eye, soon followed by heat, redness, swelling, and extreme intolerance to light. Often there is severe headache, with more or less general fever.

Treatment.—Keep the eye shaded from strong light, but not confined from the air by close bandaging. Apply linen cloths wet in cold water, changing them very frequently, until the temperature becomes natural, and the redness disappears. Wet the head often in cold water. If there are irregular chills and heat, employ the wet pack sheet once or twice daily for an hour, followed by the cold ablution. Move the bowels freely with tepid water injections. If the feet are cold, use warm foot-baths. The patient should eat nothing stronger than water-gruel, and but little of that, until the violence of the disease has very materially abated.

Chronic Ophthalmia.—This condition of sore eyes often results from riotous living, bad air, bad food, liquor, tobacco, etc., and is very often a sequel of maltreated acute ophthalmia. Millions of eyes are rendered miserable to look upon, or from, by the drugifications of doctoring, washes, lotions, leeching, blistering, bleeding, calomelizing, etc., to cure the acute form.

Treatment.—Particular attention must be paid to the general health. A daily rubbing-sheet, and a daily hip-bath, should be part of the treatment. Walking foot-baths are excellent auxiliaries. The eyes should be bathed several times a day in moderately tepid water at first, and finally as cold as may be found consistent with comfortable sensations after the application.

Purulent Ophthalmia—Egyptian Ophthalmia.—This form of inflammation is rapidly destructive, and requires prompt and energetic treatment. In addition to the pain, heat, and redness of acute ophthalmia, it is characterized by the enormous swelling of the eyelids,

soon followed by the discharge of a large quantity of thick, yellowish, or greenish matter.

Treatment.—If there be much general heat of body, the wet-sheet packing should be employed two or three times a day, followed by washing the surface in tepid water. If the body incline to chilliness, the sheet should be wrung out of warm water. The eyes are to be very frequently washed with pure soft water, warm at first, then tepid, and then cold—never very cold. Attend to the bowels as above.

Infantile Ophthalmia—Purulent Infantile Ophthalmia.—Children of a few days or weeks old are often attacked with this formidable malady. The symptoms, however, usually come on with less violence, and progress less rapidly. But the common lotions and potions, washes and swashes, are very apt to aggravate the disorder, deform the eyelids, or destroy the sight. The treatment is the same as in the case of the adult, substituting the warm or tepid bath for the pack.

Granulated Ophthalmia—Granular Eyelids.—In this affection the conjunctival membrane, or white of the eye, is raised into little projections, presenting a rough, irregular appearance. It is a consequence of long-continued or maltreated inflammation. If not cured, it may in time occasion opacities of the cornea, by the irritation it causes, followed by blindness. The only chance of cure hydropathically is by a persevering course of general and local treatment. Moderate bathing, say a daily rub-sheet and douche, the local application several times a day of very cold or iced water, or even pounded ice, with a strictly abstemious regimen, carefully avoiding all exciting condiments, and all sorts of stimulants, constitute the outlines of the remedial plan.

Nebulæ and Specks, or Opacities of the Cornea.—Nebulæ are superficial deposits in the transparent part of the eye, giving it a cloudy appearance; opacities are deeper seated, producing a dense and pearly appearance. They are caused by inflammation. Their treatment should be managed precisely as for granular eyelids, with the addition of means to excite powerful absorption. A strong douche and walking foot-baths are the best measures for this particular indication.

Ulcers of the Cornea.—These occasionally result from long-standing inflammation, and are also sometimes produced by mechanical and chemical irritants. The treatment is, in all respects, as the preceding.

Pterygium.—A small reddish triangular tumor, growing from the inner cornea of the eye, or from some portion of the eyelid. It can be readily removed by cutting, the operation being entirely painless.

Staphyloma.—A pearly, conical, whitish tumor, formed by the enlarged cornea projecting between the lids. It is the consequence of severe ophthalmia, and of badly-managed eruptive fevers, as the small-pox. It can only be removed by a surgical extirpation; though a rigidly abstemious and hygienic regimen might, in many instances, prevent the disease from proceeding to a dangerous extent. The sight is always destroyed.

Closed Pupil.—Inflammation of the iris is sometimes followed by an obliteration of the pupil. Vision is often partially restored by forming an artificial pupil.

Cataract.—This is an opacity of the crystalline lens or its capsule. Its progress is very slow, and it generally commences without any apparent cause. The first symptom of the approaching disease is indistinct vision. Objects seem enveloped in a mist before the eyes. A speck can then be observed in the center and behind the pupil. As the opacity increases, the sight grows dim, and vision is better in a moderate than a strong light.

Treatment.—Surgeons have three operations for its cure. 1st. Breaking up the crystalline lens with needles, which is probably the best. 2d. Depressing or pushing the lens aside from the angle of vision. 3d. Extracting the lens.

When this affection is first discovered, its further progress may be arrested, and possibly a cure effected, by the management applicable to nebulæ, specks, etc.

Amaurosis—Drop Serene.—A total or partial loss of vision from paralysis of the optic nerve, or an affection of the nervous structure of the retina. It is produced by inflammation, severe exposure to intense light, intemperance, gluttony, tobacco, alcoholic liquors, excessive night labor, etc. Milton was a notable example of this affection. The defect of vision comes on gradually; letters and other objects at first look misty or confounded, or run into each other; sometimes objects seem double, and at other times portions of objects are undistinguishable. Between the objects and the eye, numerous insects, cobwebs, or other substances seem to be interposed. The eye itself manifests little or no change to the observer. Sometimes flashes of light appear

before the eyes, and the head is often affected with vertigo, pain, and heaviness.

Treatment.—Confirmed amaurosis is incurable. If taken in its incipient stage, it may be arrested and generally cured. Being essentially a disease of exhaustion, the full hydropathic system should be thoroughly and perseveringly applied. The general or constitutional treatment is mainly to be relied on, the local applications being of secondary importance. The simple and single indication is, to invigorate the whole system. The rubbing wet sheet, the pack followed by the shallow-bath or plunge, sitz, and foot baths, with occasional douches, should be adapted discriminatingly to the particular condition of each case. Every part of a hygienic regimen is important. In no disease is strict temperance in eating and drinking more indispensable. A little of the "hunger cure" would be serviceable in all of these chronic maladies of the eyes.

Strabismus.—Squinting, or cross-eyes, is sometimes congenital, and sometimes produced by diseases and accidents. Measles, dropsy in the head, worms, looking too much at objects obliquely, are exciting causes. More generally it results from a permanent contraction of a particular muscle which holds the eye in a wrong direction. It is curable, by dividing the obnoxious muscle, an operation scarcely painful or dangerous.

Psorophthalmia.—A form of chronic inflammation of the eyelids, attended with itching, redness, watery discharge during the day, and a sticky, glutinous secretion during sleep. Its causes and treatment are the same as of chronic ophthalmia.

Trichiasis.—Irritative soreness of the eye, from the eyelashes growing in toward the ball. Extract the inverted hairs, and bathe often in cool water.

Entropium.—The eyelid is sometimes inverted, or turned inward. It requires surgical treatment, viz., the careful excision of the inverted edge of the lid.

Ectropium.—An eversion or turning outward of the eyelid. It creates a hideous deformity, and the lid must be excised as for entropium.

Hordeolum.—Commonly known as *stye*. It consists of a small inflammatory tumor near the edge of the eyelid. It is very painful, but generally suppurates and heals in a few days. Frequent bathing of the

affected part with water of a temperature most agreeable to the feelings, lessens the pain and accelerates the cure.

Excrescenses.—Wart-like and other trifling tumors sometimes form about the eyelids; they are easily and safely clipped off with the knife or a pair of scissors.

Ptosis.—A hanging down of the eyelid over the eyeball, from relaxation or paralysis of the muscle, whose action elevates the lid. Frequent cold bathing, occasiona head-baths, gentle manipulations over the eye with the bare hand, and attention to the general health, are all proper, and generally all are necessary.

Fistula Lachrymalis.—This is a stoppage of the tear passage, caused by obstruction from a thickening of its lining membrane. The tears, instead of passing off by the nose, run over the cheek, giving the eye a watery appearance, especially when exposed to wind or cold. In protracted cases a swelling occurs at the inner angle of the eye, sometimes forming matter. It requires to be treated on the same general plan as ptosis. Usually the general health is so disordered as to render a rigidly abstemious diet advantageous. In bad cases it may be necessary to probe the obstructed canal, or wear an artificial tube.

Asthenopia.—Weak vision. This depends on constitutional or local debility, and requires the full invigorating plan before mentioned.

Hemeralopia.—Day-blindness. A peculiar sensibility of the retina, by which the patient sees better in the evening than in clear daylight. The Albino manifests more or less of this condition. It is irremediable.

Nyctalopia.—This is the reverse of the former condition, the subject having natural vision in the daytime, but very imperfect in the evening, or twilight. Glasses sometimes assist this night-blindness to some extent.

Myopia.—Short-sightedness. The subject cannot read ordinary print well beyond the distance of fifteen or sixteen inches. In looking at distant objects, he half closes the eyelids. It is most common in young persons. The oculists remedy this defect by concave glasses. Manipulations have been found successful as the difficulty depends on too great *convexity* of the globe of the eye Flattening the eyeball by

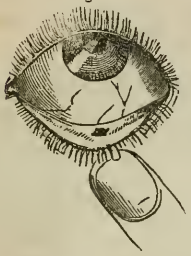
pressing gently with the fingers across it, from within outwardly, tends to restore the proper focal point of vision.

Presbyopia.—Far-sightedness. The subjects of this complaint read with the book or paper at the distance of two feet or more. The corner is too flat, the pupil is contracted, and the eyes have a more sunken appearance. It is most common to aged persons. *Convex* glasses are prescribed by the oculists. The defect may be finally overcome in many persons by manipulating from without toward the nose, so as to increase the roundness of the eyeball. Press the fingers gently from the outer angle of the eye inward, and rather around than across the globe.

Ecchymosis.—"Rowdy's coat of arms." This is the common black eye of rowdy characters. Generally it comes from an unlucky blow, but a fall, sting of an insect, or leech bite, may produce it. Bathe freely in the coldest water.

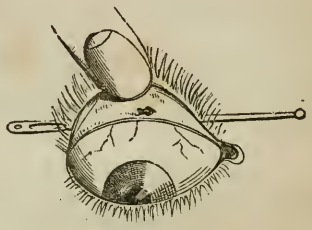
Substances in the Eye.—Foreign bodies often insinuate themselves between the eyelids, causing great pain. Draw down the lower lid (fig. 183), and remove by a piece of moistened paper. If the substance be under the upper lid, place a bodkin across the lid, and draw

Fig. 183.



DEPRESSING THE LOWER LID.

Fig. 184.



INVERTING THE UPPER LID.

back the lid so that it is completely inverted (fig. 184). Very minute pieces of iron are often driven with such violence that a surgeon is compelled to cut them out; but the operation should not be attempted by other parties, as they may destroy the eye. Inflammation is very apt to occur after these accidents, for which the eye should be well bathed with tepid or warm water frequently, until the pain abates; then follow with cool, and finally cold applications.

Lime and Roman cement are very destructive to the eyes. Wash repeatedly with a mixture of a table-spoonful of some vegetable acid in a tumbler of water, as vinegar or lemon juice.

BURST EYE.—From severe blows the eye is sometimes burst. Do not attempt to touch it, as vision may be irremediably damaged by touching it with the finger. The careful surgeon will frequently be enabled to preserve sight. Place the patient at once in bed, darken the room, and treat the subsequent inflammation with cool compresses.

CHAPTER VIII.

DISEASES OF THE EAR.

THE various abnormal affections of the organ of hearing may be conveniently grouped under the general heads of *inflammation* and *deafness;* the *kinds* of the inflammatory affection constituting the varieties of the former, and the *causes* of the malady forming the varieties of the latter. This arrangement, I confess, has nothing classic or systematic to recommend it; nor will it embrace two of the diseases belonging to the chapter, which must, therefore, be placed under a third head, thus:

- **Otitis**
  - External Acute Inflammation,
  - Internal Acute Inflammation,
  - Chronic Inflammation.
- **Deafness**
  - From Cold,
  - " Hardened Ear-wax,
  - " Excrescences,
  - " Abscess,
  - " Caries,
  - " Altered Membrana Tympani,
  - " Diseases of the Eustachian Tube,
  - " Extravasation,
  - " Nervous Affections,
  - " Dumbness,
  - " Senility.
- **Promiscuous**
  - Earache,
  - Foreign Bodies and Insects.

Inflammatory affections of the ear have usually been distinguished by nosologists into *acute* and *chronic;* the former being termed *otitis*, the latter *otorrhœa*. Otitis has been divided into *external* and *internal*, as it affects chiefly the external or internal ear; and *otorrhœa* has been regarded as *mucous* or *purulent*, according to the character of the discharge. Other distinctions have been predicated on the causes of the disease, as *scrofulous*, *syphilitic*, etc

External Acute Otitis.—Acute inflammation of the external ear commences with slight pain, or sense of heat, or intense irritation. or itching, followed by more acute and distressing pain. The pain is augmented on pressure, by the motions of the lower jaw, and generally by the contact of very cold air, or very warm fluids. Hearing is confused, and unusual noises trouble the ear, and sometimes, within three or four days, a thin fluid is discharged from the meatus, which generally soon becomes thicker and puriform. Sometimes it is greenish, fetid, and extremely acrid. When the inflammation subsides, the matter hardens into a caseous or cheesy consistence, which, unless removed, obstructs the passage, and occasions partial deafness.

Treatment.—This is plain and simple. Fasting until the inflammatory stage materially subsides; the constant application of several folds of cold wet cloths to the part; occasionally syringing the ear with cool but not very cold water; and general bathing, once, twice, or thrice a day, by means of the dripping-sheet or wet-sheet pack, comprise all the needful plan of medication.

Internal Acute Otitis.—Acute inflammation of the internal ear is attended with a distressing sense of distention, painful throbbing, and nervous disturbance, consequent on the obstruction of the Eustachian tube, and the difficulty of discharging the secreted matter externally. The pain is deep-seated; there is often a feeling as though the ear would burst, and loud, clanging, or beating noises are heard, and the ear is painfully susceptible to sound. In some cases the face is flushed, the eyes are red and watery, the head delirious, and the attending fever of the typhoid character. If the disease is not speedily relieved, suppuration takes place, and the accumulated matters are discharged through an ulcerous perforation of the membrane of the drum, or into the throat by the Eustachian tube, or by a fistulous opening in the mastoid process of the temporal bone. The former is the usual termination; the second seldom occurs; and the latter result is extremely rare. Structural changes sometimes result from internal otitis, which partially or totally destroy the sense of hearing.

Treatment.—This disease should be met with prompt and vigorous treatment. In addition to the processes recommended for the preceding variety, cold water should be poured over the sides and back of the head, several times a day, and several minutes at a time, or until the preternatural heat of the head is thoroughly subdued. The wet sheet must be resorted to sufficiently to keep down the general fever; and the bowels should be kept well cleansed by tepid injections. In some cases the purulent matter becomes so inspissated that it makes its way through the opening in the membrana tympani with great difficulty, in which case its discharge may be facilitated by very frequent injections of warm water into the external meatus. Sometimes the Eustachian tube is entirely obstructed; this fact can be ascertained by causing the patient to make a forcible attempt at expiration with the mouth and nose closed; if the tube be permeable, bubbles of air, mixed with the fluid secretions, will escape at the external meatus. If the early treatment is thorough, and thoroughly hydropathic, this affection will almost always terminate by resolution, leaving none of those deplorable results which are so common, as sequelæ, after a course of allopathic management. Indeed, under the ordinary drug-treatment the disease often continues with violence from three to six weeks, and not unfrequently results in a complete disorganization of the internal ear.

Chronic Inflammation—Otorrhœa.—A prolonged discharge, or running from the ear, is frequently the consequence of acute otitis, and often one of the sequelæ of maltreated eruptive fevers, particularly small-pox, scarlet fever, and erysipelas. The *mucous* form is the most common among delicate and scrofulous children, and frequently, under the popular system of treatment, continues for years. The *purulent* variety is often connected with caries, or ulceration of the surrounding bony structure. The patient, in this case, complains of a dull pain in the ear, extending over the side of the head; of impaired hearing; and exhibits a dullness and heaviness of expression. The mastoid process is oftentimes the seat of ulceration, the external parts being then swollen and œdematous.

Treatment.—All forms of chronic abscesses, ulcerations, mucous or purulent discharges from the ear, should be treated on one and the same general plan. They always indicate depravity of fluids, or debility of functions, or both; hence the uniform indication is to cleanse, or strengthen, or both. First of all, the general health must be attended to. The coarse, plain, farinaceous, and frugivorous diet, a careful abstinence from all saline, alkaline, or greasy foods or condiments, with a persevering application of such forms of general bathing as the

general constitutional condition demands, are the essentials of the plan The rubbing wet sheet, with frequent hip and foot baths, as derivatives, make a good bathing arrangement. If the skin is obstructed or bilious, the pack sheet should be occasionally resorted to; and it is more or less frequently useful in nearly all cases. After the general health has become substantially improved, warm, and then tepid, and then cool injections, should be thrown into the ear, if, as is usually the case, there is more or less deafness, and this should be persevered in for weeks and months, if necessary.

Deafness.—The pathological conditions, structural and functional, of the various parts entering into the formation of the ear, which may produce a greater or less depravation of the sense of hearing, are very numerous; and many of them are exceedingly difficult of diagnosis. Fortunately, the worst cases are of rare occurrence; and those which are common are easily discriminated, and successfully treated.

Deafness from Colds.—A state of atony, or sub-paralysis of the auditory nerves, from "taking cold," frequently occasions deafness in one or both ears, for days, weeks, or months. It is curable by persevering tepid injections, with due attention to the general health.

Deafness from Hardened Ear-Wax—An accumulation of hardened wax, obstructing the function of hearing, is generally the result of an erythematic inflammation of the auditory passage. Persons of bad habit of body, torpid skin, deranged digestion, etc., are peculiarly liable to this affection. It is known by an increased sensibility or soreness in the meatus, a sense of itching, and often a burning or pricking sensation, confusion in the head, noises in the ear, with a tearing or dragging sort of pain about the ear and head.

It is curable in the same manner as the preceding; but due attention to the general health is the leading indication; and among the most important of the hygienic appliances is a rigidly plain and unconcentrated diet. Head-baths are useful when the inflammatory symptoms are prominent.

Deafness from Excrescences.—Morbid excrescences, usually soft wart-like tumors, or spongy vesicular polypi, are sometimes found in the ear-passage. They are the result of chronic inflammation of the follicles of the meatus, or the membrana tympani. These excrescences are red, sensitive, and readily bleed when irritated, except in a few cases, when they are hard and indurated. To detect their character,

the meatus must be examined with the ear speculum, or a common triangular reflecting prism of flint glass, by which light can be sent to the bottom of the external ear-passage.

Treatment.—In treating these conditions, the inflammatory action should be subdued, and the general health restored, as already mentioned, and then the fungus growths extirpated, after which, both tepid and cold injections should be employed for a considerable length of time. The polypi and other tumors can generally be eradicated by a pair of fine curved scissors, or a curved double-edged knife, having a blunt and rounded extremity, or a pair of delicate forceps, with sharp points, or with a ligature passed around them, and occasionally tightened until they are cut off. Such excrescences as are incapable of removal by mechanical means, can generally be destroyed by caustics, for which purpose they may be repeatedly touched with nitrate of silver. Its employment demands great care, to prevent the sound parts from being cauterized also.

Deafness from Abscess.—The abscess is a phlegmonous inflammation of the cellular tissue of the passage, usually caused by severe cold or exposure to strong currents of air. It should be treated precisely like acute inflammation.

Deafness from Caries.—Some persons are affected with, and children of a scrofulous diathesis are very liable to, an inflammation of the periosteum, which generally results in inflammation of the bony structure, and frequently terminates in exfoliation of the diseased bone, by which the passage is narrowed or obliterated. The inflammatory stage should be treated by the means previously recommended, and as the healing process goes on, the passage should be prevented from closing by caustic or metallic tubes. The hearing always remains dull in these cases.

Deafness from an Altered Membrana Tympani.—Neglected or maltreated inflammatory affections are occasionally followed by a thickening, opacity, fungous excrescence, or destruction of the membrane of the drum. Sometimes the membrane, examined by the speculum, appears as if covered by small projecting glands or follicles; at other times it is very red and vascular, the blood-vessels being distinctly visible. The pain is accompanied by buzzings, as if something were fluttering in the ear, and by diminished hearing. The pain is increased by loud sounds, by variations of temperature, and by pressure upon the ear.

Treatment.—There is nothing peculiar in the treatment of this affection, as distinct from that of the other forms of inflammation and its consequences, already described. It is worth remembering, that in many chronic diseases of the head, and particularly of the ears, derivative, hip, and half-baths are among the best applications. They should be as lengthy as the patient can bear them, without disagreeable feelings in the brain or lungs, generally thirty or forty minutes. Artificial perforation of the membrana tympani has been frequently performed in cases where it was so thickened as to nearly or quite destroy the hearing; but it has seldom succeeded in restoring it.

Deafness from Diseases of the Eustachian Tube.—The Eustachian tube is sometimes obstructed by the presence of tumors in its vicinity, by inflammation resulting in swelling of the mucous membrane, effusion, constriction or obliteration of a portion of the canal. These conditions cannot well be ascertained without explorations by ear forceps or catheters. Injections of warm water, and of air, have been employed to ascertain the nature and extent of any existing obstruction; but all these operations are attended with no small degree of danger. Several fatal accidents are recorded in medical journals, as having recently occurred in London, from the pumping of air from a press into the Eustachian tube. The wisest policy in these important cases is to be content with the thorough employment of all measures conducive to the general and local health.

Catarrhal affections, inflammation of the throat, and eruptive fevers, not unfrequently leave an accumulation of mucus in the Eustachian tube, obstructing it, and occasioning more or less deafness. In such cases cold water gargles are an excellent addition to the general plan of treatment.

An inflammation principally confined to the mucous membrane of the Eustachian tube, which is often but the extension of a disease of the throat, frequently causes deafness. When this inflammation is confined to the guttural part of the tube, the patient hears well at times, but only momentarily. His own voice sounds worse to him than the voices of others, and has sometimes a gurgling, crackling, or detonating sensation. The pain is greatly increased on gaping, or by the act of mastication. Ice-cold gargles, with the whole general anti-inflammation treatment, should be perseveringly employed.

Enlarged tonsils sometimes press upon the guttural extremity of the Eustachian tube, so as to produce deafness, as also do fungous excrescences, polypi, and enlarged parotid glands. Those obstructions, of course, must be removed by ligature or excision; though enlarged ton-

sils can generally be reduced by cold gargles, and thorough general treatment, with a rigidly abstemious diet.

Deafness from Extravasation.—External injury, violent sneezing, or severe constriction of the neck, may produce a lesion, causing an extravasation of blood in the cavity of the drum. Cold compresses, gargles, injections, and any other baths demanded by the state of the general system, will generally produce an absorption of the extravasated fluid, if it does not pass off by the Eustachian tube, and remove the deafness.

Nervous Deafness.—The term nervous, in this sense, is very indefinite. It is applied by medical authors indiscriminately to all forms of impaired hearing, unconnected with *apparent* inflammatory phenomena or structural changes. The proximate causes of this form of deafness are numerous: it may arise from simple atony, paralysis, or exhaustion of the nerves pertaining to the sense of hearing, or those nerves may be compressed by tumors, purulent formations, or extravasations, not manifested by any external symptoms; or from organic affections of the brain pressing on the origin of the nerves.

The most prominent symptoms which indicate compression of the nerves are vertigo or dizziness, severe and constant headache, noise in the ears, weak sight, and defective memory. It is generally incurable, although the means applicable to the preservation of the general health may prevent the further progress of the condition producing the deafness; and in some cases the hearing may be greatly improved by the same sanatory measures.

Palsy of the acoustic nerve arises from severe shocks, contusions of the brain, convulsions, apoplexy, fever, plethora, and still more frequently from sympathy with some chronic derangement of other parts or organs, generally the digestive. The reader need not, perhaps, be told that in all the affections of this class, which, in fact, are many, the prospect of cure depends entirely upon the degree of general health which can be reproduced.

Dumb Deafness.—Deafness in infancy may arise from original constitutional malformation, or from structural diseases occurring in the early periods of life. When congenital, it is incurable; but in many cases resulting from diseases in the first few years of existence, a cure may be effected by careful attention to the local condition and general health; it is especially important to avoid all concentrated and stimulating articles of food in these cases.

Senile Deafness.—Old age should not, in a natural development and decline of the bodily functions, be subject to deafness, blindness, nor other loss of external sensibility, only in the ratio that all the physiological functions cease to perform their offices. But the usual habits of living tend to thicken the fluids and hasten these results prematurely—the fine capillary vessels of the delicate structure of the organs of sense become obstructed, and their functions impaired disproportionately to those of other and more vital organs. Hence the great frequency of deafness in old persons. We have no panacea to offer in this relation, of preventive or curative efficacy, save a life in conformity with the laws of life.

Earache—Otalgia.—This is usually symptomatic of inflammation, or of foreign bodies or insects in the meatus. But the affection, considered as idiopathic, is of a nervous, neuralgic, or rheumatic character, coming on abruptly, and disappearing suddenly, and is unattended with febrile irritation. Noises in the ear, and slight deafness, are frequent accompaniments of otalgia.

Treatment.—Fasting a day or two, syringing the ear with warm water, and a few tepid foot-baths, will generally soon remove the worst attacks. A warm or vapor bath, or a wet-sheet packing, will often remove the trouble at once. If the stomach is foul, a warm water emetic should be employed, and if the bowels are not entirely free, copious warm water injections are advisable.

Foreign Bodies and Insects.—Children at play occasionally put beans, peas, small pebbles, and other substances into the ear-passage. These may remain an indefinite time without trouble; but frequently inflammation and ulceration ensue, with a constant discharge of irritating or fetid matter. They often produce the most intense agony, and are sometimes so surrounded by fungous growths as only to be detected by the most critical examination with the speculum, forceps, or probe. If the body be hard, as a stone or metallic substance, the grating of the probe will discover it.

Their removal by mechanical means requires the most careful and dextrous management, to avoid injuring the adjacent structures.

Insects and worms sometimes effect a lodgment in the meatus, producing awful suffering. There is little doubt that inattention to cleanliness, particularly in diseased or ulcerated states of the passage, attracts the animals to deposit their ova there, which in time are converted into worms; and it is possible they may be generated there as they are in a morbid condition of the secretions of the mucous membrane of the

stomach and bowels. In either case they are unprofitable and dangerous residents.

When they can be seen, they should be removed with the forceps. A pledget of lint, covered with some viscid substance, as oil and honey, to which worms when small and numerous will adhere, will often enable us to remove them. They may be destroyed also by narcotic poisons, as oil of almonds, or a strong infusion of green tea, or tobacco.

CHAPTER IX.

ERYTHEMATOUS INFLAMMATIONS.

In the loose, slip-shod medical literature of the day, the terms, erythematic, or erythematous, and erysipelatous, are indiscriminately applied to a great variety of topical, eruptive, and symptomatic inflammatory affections, some of which are actually exanthems, or eruptive fevers, and others mere rashes, attended with little or no constitutional febrile disturbance. In its strictest sense, erythema means inflammatory blush, and is applied to those external manifestations of inflammation which are not necessarily connected with fever; whereas erysipelas is usually limited to an eruptive fever. Again, therefore, I find it necessary to sacrifice uniformity of method to convenience—my limits precluding the idea of a perfect nosological arrangement—and comprise, in the present chapter,

Erythemas	Œdematous,	Exanthematous.	Rash Exanthem—Nettlerash.
	Erysipelas,		
	Gangrenous,		Icherous Exanthem { Aptha, Pemphigus.
	Vesicular,		
	Anatomical,		
	Chilblain,		Carbuncular Exanthem—Yaws.
	Fret.		

Erythemas.—All the varieties of erythema are characterized by red, tumid, fullness of the skin, disappearing on pressure, attended with a burning pain, and terminating generally in cuticular scales, or vesicles, sometimes in ulceration, and more rarely in gangrene.

In the *œdematous* variety the skin exhibits a bright scarlet color; the affection spreads widely and deeply through the areolar tissue,

which often suppurates imperfectly, and occasionally sloughs and becomes gangrenous. The swelling is principally caused by extravasated serum; it is generally found in dropsical constitutions, and usually denominated, "*œdematous inflammation.*"

In *erysipelatous erythema* the color is of a deeper red, and superficial, with a determinate edge, usually in a serpentine or winding direction, the part first attacked healing as the disease extends over the surface. This form is called "*erysipelatous inflammation*" in many medical books. Sometimes, though rarely, it is attended with some degree of extravasation, producing a soft swelling, and attended with a shining surface. It often follows wounds, injuries, and surgical operations. In some cases it extends beneath the skin, and runs into suppuration and mortification, constituting the *erysipelas phlegmonodes* of Galen.

Gangrenous erythema is characterized by a superficial dusky red color; a bloody serum separates the cuticle from the true skin; the cutis, when denuded, exhibits dark brown spots, which are disposed to blister and slough. It attacks chiefly the extremities. It is always found in extremely relaxed and debilitated constitutions, and is most common in advanced age, especially when the vitality has been prematurely exhausted by narcotics and stimulants, as tobacco and alcohol. It is sometimes, however, seen in weakly infancy. Either of the preceding varieties may pass into the gangrenous form.

In the *vesicular* variety the color is pale red; the surface is roughish, and covered with minute crowding vesicles, filled with acrid, often reddish fluid. Authors distinguish two sub-varieties: the first, *benign*, in which the vesicles advance without a breach of the cuticle; and the second, *corrosive*, in which the vesicles break in the part first affected, and the corrosive fluid produces tracts of sanious ulceration as the redness advances. This and the preceding variety were called *ignis sacer—holy fire*—by the ancients, from the superstitious notion that they were special inflictions of the Deity, or of His ministers. There are also sub-varieties of this form of erythema, produced by the medicinal administration of mercury and arsenic; the former has been called *erythema mercuriale* and *hydrargyria* in medical books.

The *anatomical* variety is the erythematous inflammation, which arises from dissection. Unlike all the other forms of erythema, and, indeed, unlike most other inflammations originating from a local cause, it commences, at least in the great majority of cases, with a constitutional febrile disturbance; the local affection first appearing about the shoulder or axilla, while the injured part shows little or no inflammatory action The characteristic symptoms, as well stated by Dr. Good, are:

"Inflammation, with lancinating pains about the axilla, shooting down the chest, ushered by severe rigors and anxiety, succeeding rapidly to the dissection of a fresh corpse, with a puncture or abrasion of the hand of the anatomist; blush, a deep crimson, with a spongy fullness, chiefly over the pectoral muscle; fever, a typhus." Those few cases in which the local symptoms take the lead of the constitutional, are always the least dangerous; and this remark probably holds true with every form of disease resulting from local injury or infection.

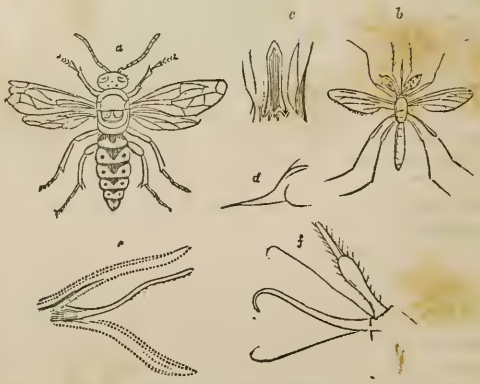
The immediate cause of this affection has never been satisfactorily explained. It has been ascribed to a specific virus, to the irritation of a putrescent fluid, or to simple irritation or inflammation operating upon a peculiar idiosyncrasy, or constitutional habit. There is little doubt that a dead body, in the incipient stage of putrefaction, may develop some chemical element, which, analogous to a ferment, is capable of inducing a process of transformation or decomposition in some of the elements of the blood, or other fluids of the body, not very dissimiliar to what happens in small-pox, measles, and other diseases dependent on a specific virus, or transformation of matter. To this view it has been objected that the disease is never taken from a corpse in the advanced stage of putrefaction; but I think the objection itself furnishes a strong presumption of the correctness of the opinion; for, it will readily be admitted, that all forms of matter which, in a particular stage of the process of decomposition develop an infectious or poisonous principle, must necessarily be changed into something different if the process of decomposition goes on. Thus yeast, the vaccine virus, and alcohol, all products of decomposition or putrefaction, may be resolved into very different and comparatively inert compounds of elementary matters, by further decomposition.

The local inflammation and the accompanying fever resulting from the bite of venomous serpents—as the cobra de capello, and rattlesnake, from whose virus death often results within twenty-four hours—in all essential circumstances, resemble the erythema before us; the chief difference being that the local and constitutional symptoms both commence and continue simultaneously, while the progress of the disease is much more rapid, the vitality being, as it were, destroyed as by an electric shock, by the first impression of the poison.

There are also two classes of insects which occasion more or less local inflammation of an erythematic character, in some cases followed by a constitutional disturbance similar to that of anatomical erythema, and in a very few cases terminating in death. The first class—as bees, wasps, hornets, ichneumons, etc.—sting, and the second class—as the gnat, horsefly, flea, bug, etc.—pierce the skin and suck the

blood. Whether the injury results mainly from poison, or the irritation of a rough, ragged wound, is not, in all cases, clear. The following cut exhibits the instrumentality by which these insects pierce, cut, and tear the fine capillary network of blood-vessels and nerves:

Fig. 185.



STINGING AND BITING INSECTS.

In Fig. 185, *a* is a representation of the hornet; *b*, the gnat; *c*, lancets of horsefly; *d*, sting of wasp; *e* lancet of flea; *f*, lancets of bug.

The variety called *chilblain*, or *pernio*, affects principally the hands and feet, and is occasioned by exposing the parts alternately to extreme cold and heat. In very cold climates the nose, ears, and lips are sometimes destroyed by it. The skin is of a crimson color, suffused with blue, and is troubled with an excessive and obstinate itching.

The remaining variety—*fret*, *intertrigo*, *erosion of the skin*—is generally seen behind the ears of children, and about the groins and anus of children and adults. The inflamed part is of a bright red color, the cuticle is eroded, and the exposed skin oozes a limpid and acrimonious fluid; the discharge is often peculiarly offensive. The whole theory of its nature, advanced by Dr. Good, in his elaborate "Study of Medicine," is in the following words: "It is an erythema with weak vascular action, and often considerable irritability, in consequence of such weakness." The plain English of the matter is this. It is an erythema with filthy personal habits, and always considerable uncleanliness of the skin as a consequence of such habits. I have never known a man,

woman, or child who took a daily bath or wash over the whole surface, to be troubled with it.

Treatment.—In the first four forms of erythematic inflammation, we have to deal with local irritation, in connection with great general debility; in the fifth-named variety these conditions are coupled with the peculiar morbid action of a specific virus; while in the last two varieties the only morbid condition is irritation. The indications of cure are, therefore, sufficiently obvious.

Œdematous erythema is rarely found except as symptomatic of some primary malady; but when occurring idiopathically, the local wet compress, frequently alternated with gentle friction by means of soft flannel or the bare hand, and the general tepid or cool ablution, or half-bath, constitute the leading remedial measures. Bandages of wet linen, when the absorbents are nearly powerless, and the accumulated fluid produces very painful distension, are frequently useful auxiliaries, provided they are evenly and smoothly adjusted.

From the facts that erysipelatous erythema frequently attacks children soon after birth, and that children are sometimes born with it, we may reasonably infer that the malady is closely allied to the voluntary habits, especially the dietetic habits, of the patient, or, in case of infancy, the mother. Hence a strict and rigidly simple dietary is of first importance in the remedial course. The greater tendency to general fever requires more thorough general bathing, and frequently a resort to the wet-sheet pack.

The gangrenous and vesicular forms require more particular attention to the local treatment. While the general treatment is regulated by the superficial heat and the feelings of the patient, the temperature of the water being as cool or cold, but no colder, than is compatible with a prompt and comfortable glow on the surface; the local applications should be very cold, so as to produce a tonic and constringing effect. If very cold applications are painful, they need not be continued long at a time, but may be frequently repeated.

Allopathic authorities have not yet settled the question whether the antiphlogistic plan—bleeding and reducing, or the stimulating plan—bark and wine—is the most proper; for neither claims to be successful. Messrs. Hutchinson and Lawrence, eminent European surgeons, recommended making numerous and extensive incisions in the affected parts, with a view of arresting the disorganization of the structures; a practice which has been copied by several American practitioners, though not, I believe, with such success as will commend its general repetition.

I am not aware that any hydropathist has had an opportunity of test-

ing the new system in a case of erythema arising from dissection; nor do I believe that *all* cases could be cured by hydropathic, or any other means. Some anatomists who become thus affected are among those whose physiological habits, especially in the matter of eating and drinking, are gross and unhealthful; hence they *may* have that degree of putrescency of blood which can offer but slight resistance to the destructive action of the infectious principle; an attack, therefore, may be certain death. And the same remarks apply to the bites of venomous serpents. But the most hopeful plan of treatment is clear. The intensity and malignancy of the disorganizing inflammation should be opposed by a succession of wet-sheet packs, sufficient to keep the morbid heat in check, and promote free perspiration, if possible. In a later stage of the disease, when the strength is much exhausted, and the extremities inclined to coldness, I would employ the warm wet-sheet, and apply hot bottles to the feet. Water-drinking should be insisted on to the full extent of the stomach's capacity to receive it without painful repletion. I am not aware that any advantage is pretended to have been derived from any of the numerous local applications which have been tried. In the erythema from the virus of serpents, a ligature above the injury, if applied *immediately* after the bite, or the removal of the wounded part by excision, or the actual cautery, when resorted to *instantly*, have no doubt many times materially abated the violence of the disease, or possibly have prevented it altogether. And in some instances it is said that sucking the poison from the wound very soon after the serpent's fang has been withdrawn, has prevented all injurious consequences—the mouth being defended by a wash of olive oil. It is exceedingly difficult to determine the value of these resources, for the reason that the majority who are bit are not poisoned at all; hence a remedy perfectly inert may acquire the reputation of a specific. It is worthy of remark, however, that the virus of the rattlesnake—and the same is true of the fetid secretion of the skunk, and, indeed, of the venomous matter of most, if not all, poisonous serpents, reptiles, and insects—is not dangerously noxious when taken into the mouth or even into the stomach in considerable quantities; indeed, it has been employed in one, two, and three deep doses as an antispasmodic, in difficult breathing, asthmatic affections, etc., its sensible operation being rather agreeable, nervine, and somewhat exhilarating, like the effect of castor, musk, and similar animal secretions. Compressing the vessels around the bitten part very soon after the accident by a cupping-glass or any similar instrument, by interrupting the process of absorption, may contribute something to the safety of the patient. The general treatment is, of course, precisely the same, whether the system is poisoned from

the ingenerated virus of a dead corpse, or the venomous secretion of the living reptile. The irritation or poison resulting from the stings or bites of insects is most promptly relieved by the coldest water, and the preferable mode of application is the constant stream or douche. The constitutional affection, should it supervene, requires the same management as the anatomical variety.

Chilblain requires a daily general bath or ablution, and frequent local bathing in the coldest water. As a prophylactic, the patient should never suddenly approach a hot fire when the feet and hands are very cold.

The last named variety, as already intimated, only requires that the skin be well washed all over once a day, or oftener, with pure cold water. If there be any sufferers who cannot possibly be satisfied without some "medicated" wash, a small quantity of either bar or soft soap may be added to the water. Like all the empirical infallibles of the day, "it will do no harm, if it does no good."

Nettle-Rash—Urticaria.—Some authors have treated of this disease as a variety of scarlet fever. The precursive fever is slight, although the stomach usually manifests considerable disorder. The rash appears about the second day, attended with a peculiar itching, like the sensation produced by nettle-stinging; the eruption wanders from part to part, and fades and revives irregularly. It terminates in a few days with cuticular desquamation.

Special Causes.—Irritating, constipating, or indigestible food; salt, vinegar, spices, narcotics, shell-fish, stale sausages, old cheese, frowzy butter, tainted animal flesh, etc.

Treatment.—A warm water emetic, tepid injections daily to keep the bowels free, a daily dripping-sheet or half-bath, with plain and abstemious diet, are all that need be said on this subject.

Aptha—Thrush.—This disease consists of minute vesicles, containing, when matured, a whitish or milky fluid. Authors distinguish three varieties: *infantile*, or *white thrush*, appearing in infants soon after birth, often extending from the mouth to the stomach, and even intestinal canal; the vesicles granular, roundish, and pearl-colored, and terminating in curd-like sloughs; *malignant*, or *black thrush*, is seen most frequently as a symptomatic affection in typhus and malignant fevers; but it is said to be sometimes found idiopathically in old age, and other exhausted states of the vital powers; the fever is a strongly-marked typhus, and the sloughs are dark-colored or black; *chronic thrush* is attended with great emaciation and hectic fever the eruption

extends through the whole length of the alimentary canal, the edges of the tongue are affected with pimples, superficial blisters appear within the mouth and fauces, and the stomach is at all times troubled with a sense of heat and soreness. Diarrhea often attends, and ulcerations of the bowels are frequent consequences.

Special Causes.—Hot drinks; the excessive use of tea and coffee, especially the drug-colored *green* tea of commerce; highly-seasoned food; confined air; repelled eruptions; too concentrated food; rancid grease of any kind; pork gravies; retained animal putrefaction, from inattention to bathing the skin, etc.

Treatment.—The abdominal bandage, the wet-sheet pack once or twice a week, cool injections daily when diarrhea attends, moderate drinking of cool, but not very cold water, a daily half-bath, ablution, or dripping-sheet; and the adoption of a bland, simple, strictly vegetable diet, save the article of milk; with a strict avoidance of all the producing causes, comprise the remedial plan.

Pemphigus—Vesicular, or Bladdery Fever.—This affection is generally symptomatic of visceral inflammation; though several nosologists of celebrity describe it as an idiopathic disease, and even distinguish it into several varieties. Its diagnosis is, transparent vesicles scattered over the body; filbert-sized, with a red, inflamed edge, but without surrounding blush or tumefaction; the vesicles contain a fluid which is pellucid or but slightly colored; on breaking, the vesicles are disposed to ulcerate; and the affection is accompanied with a fever of the typhoid type.

In the variety called *vulgaris—common vesicular fever*—the vesicles appear from the second to the fifth day, in successive crops, often extending over the mouth and intestinal canal; another variety, called *glandular*, is preceded by swelling of the neck and throat, and in Switzerland, where it has been chiefly noticed, it is considered as highly contagious; and a third form, termed *infantile vesicular fever*, attacks infants soon after birth.

Treatment.—As this disease, in its essential nature and causes, is nearly allied to the preceding, the treatment need not be materially different. In many cases, frequent sponging with tepid water is sufficient. M. Langhaus, who has given us a description of the glandular pemphigus of Switzerland, and who treated the disease by bleeding and sweating, tells us, with a self-stultification peculiar to the school to which he belonged, in one part of his narrative, that "it was so contagious as to spread with great rapidity through numerous families, and so malignant that *all* persons affected by it died" and yet, in allu-

sion to his bleeding and sweating, recommends it, "with the most sanguine hope that it will effect a speedy cure."

Yaws.—*Rubula* and *frambœsia* are other terms by which this disease is known. Some nosologists have classed it among the eruptive fevers, although the attending fever is merely adventitious; while others have regarded it as properly belonging to the order of tumors. It resembles syphilis and other infectious diseases, in being communicable by contact; and the exanthems and contagious diseases, in rendering the body invulnerable to a second attack.

Symptoms.—The disease consists of numerous and successive tumors, commencing with mere specks, and gradually increasing to the size of a raspberry, which they somewhat resemble; some of the smaller papulæ become real pustules, and discharge an opake, whitish fluid when broken, and concrete into dense scabs or crusts; the larger run into fungous excrescences, and in their granular surface, as well as size and color, resemble the raspberry, from which their name is derived. These tumors, one of which becomes, at length, much larger than any of the rest, have but little sensibility, suppurate very imperfectly, and discharge a sordid, icherous matter. They originate in scattered groups over the body, and their connection with personal uncleanliness and infection is sufficiently evinced by the fact, that they are chiefly found in the groins, axillæ, about the anus and pudenda, though they often disfigure the neck and face.

This is one of the most unsightly diseases known; and nothing can exceed the revolting spectacle of a West India yaw-house, where the slaves, suffering under this disease, are collected together. Dr. Good has distinguished the disease into two varieties—*African* and *American*. The diversity of the symptoms, however, is slight, and attributable wholly to local circumstances. In duration the disease varies from one to three months. Sometimes callous tumors are formed on the soles of the feet, in consequence of the yaw-tubercles not being able to press through the thick skin; these are called *tubba*, or *crab-yaws*, and greatly impede the exercise of walking.

Treatment.—One or two tepid or moderately cold general baths, either by the dripping-sheet, pack, or ablution, with a strictly vegetable and rigidly simple and abstemious diet, are the proper therapeutic appliances.

CHAPTER X.

SPASMODIC DISEASES.

THERE are a variety of diseases, whose most prominent phenomena are: irregular muscular contractions, in some cases amounting to a more or less permanent rigidity of particular muscles, and in others attended with convulsive agitation of some part or of the whole muscular system. These may be conveniently grouped in the present chapter in the following manner:

- **Comatose Spasm**
  - Convulsion,
  - Epilepsy,
  - Hysterics.
- **Synclonic Spasm**
  - Tremor,
  - Delirium Tremens,
  - Shaking Palsy,
  - St. Vitus' Dance,
  - Raphania,
  - Barbiers.
- **Suffocative Spasm**
  - Cough,
  - Dyspnœa,
  - Asthma,
  - Laryngismus,
  - Incubus,
  - Bronchitis,
  - Sternalgia,
  - Pleuralgia,
- **Clonic Spasm**
  - Hiccough,
  - Sneezing,
  - Palpitation,
  - Nictitation,
  - Subsultus,
  - Stretching.
- **Constrictive Spasm**
  - Hydrophobia,
  - Acrotismus,
  - Tetanus,
  - Locked-Jaw
  - Cramp,
  - Muscular Spinal Distortion,
  - Muscular Stiff-Joint.
  - Wry Neck.

The generic distinctions in the above arrangement may be thus defined: The *comatose* spasm is attended with muscular agitation, diminished sensibility, inability of utterance, followed by a tendency to drowsiness; the *synclonic* spasm is characterized by a simultaneous trembling, or chronic agitation of various sets of muscles, especially when excited by the will; the *suffocative* spasm disturbs, momentarily or permanently, the muscles of respiration alone; the *clonic* spasm is the forcible excitation of one or more muscles in sudden and irregular snatches; and the *constrictive* spasm is an irregular form of muscular contraction producing rigidity.

CONVULSION.—Deaths from convulsion-fits, especially among the

infantile population of our country, are becoming alarmingly frequent. In the city of New York its fatality ranks next to that from consumption, and is all the while increasing, and as far as I have been able to gather information on the subject, the same is true of nearly all parts of the United States. *Why* twenty or thirty children, all of them not far from two or three years of age, should die weekly the year round, in this city, from this disease, may well engage the earnest thoughts of philanthropists and physicians, and, above all, of mothers.

Although convulsion occasionally attacks persons in all periods of life, the disease, as already intimated, is conspicuously frequent and fatal in infancy; pregnant women are also, after the sixth month, during labor, and immediately afterward, liable to the disease then denominated *puerperal convulsions.*

Symptoms.—The muscular agitations are violent, and with very young children the spasmodic movements are extremely rapid; the fingers work, and the eyelids quiver; the teeth gnash; sometimes the convulsive motions skip from one part to another; at other times the body is universally convulsed; occasionally the paroxysms intermit and recur at irregular intervals; often they are accompanied with shrieks or yells. In infancy, the disease is usually preceded by twitchings and startings, and accompanied with a blueness about the eyes and upper lip. When it occurs in adults, the muscles are powerfully exercised, the mouth foams, the eyelids open and shut perpetually, or are stretched upon a full stare, while the protuberant eyeball rolls rapidly in every direction, and the whole face is hideously distorted.

Special Causes.—In the course of this work I have more than once had occasion to allude to the unhealthful habits and fashions which prevail in fashionable, and, indeed, in nearly all civilized society, in the matter of rearing children. The disease before us is one of the many special evidences of the general bad feeding, bad dressing, bad doctoring, and bad management that rule in the nursery; and as especially prominent among the special causes may be named concentrated food and confections—baker's bread, sweet-cakes, candies, etc.—and the paregoric and purgatives which are given to silence the pain and remove the constipation which they produce.

Treatment.—The first thing to be done in a convulsion-fit is to expose the patient to abundance of *cool* air and plenty of *cold* water. There is no danger from any amount of ventilation in the coldest of weather while the fit continues. The cold ablution, or dripping-sheet, will answer for bathing purposes, but the half-bath, during which the surface is actively rubbed with the bare hand, is the preferable mode. As the bowels are usually clogged with ill-digested matters, or irritated

by acrimonious secretions, tepid injections should not be omitted. After the spasms are overcome, the prophylactics to employ in the intervals are brown *home-made* bread, and milk, potatoes, squashes, pumpkins, apples, etc., and a daily bath or universal wash-down.

EPILEPSY—FALLING-SICKNESS.—Epileptic fits present all degrees of violence, from a slight general spasmodic agitation and distortion of the muscles of the face, with a momentary suspension of consciousness, succeeded by a sense of drowsiness or stupor scarcely appreciable, to the most violent convulsive movements of the face and chest, while the limbs are fixed and rigid, and followed by several hours of total unconsciousness.

Symptoms.—In some instances the disease is ushered in by precursive symptoms, which warn the patient of the approaching attack. The most usual of these is a sensation of a cold creeping vapor from some particular part of the body, which has been called an *aura epileptica*. But more generally the paroxysm comes on suddenly, and often commences with a startling scream; the patient is instantly deprived of all sense of perception and power of motion, and if standing, he falls, while the body is more or less convulsed; the muscles of the face and eyes are always much affected, and the countenance violently distorted; the tongue generally protrudes from the mouth, which discharges a frothy saliva; the lower jaw is strongly convulsed, and the teeth, gnashing upon the tongue, often wound it severely; sometimes the urine and fæces are discharged involuntarily. A profound lethargic sleep succeeds the severer attacks, from which the patient at length awakes, unconscious of having suffered pain.

When the disease is owing to an organic cause, the attack is more abrupt; the patient suddenly falls prostrate; there is more rigidity and less spasmodic agitation of the muscles, and optical illusions are very common. This form of epilepsy has been called *falling-sickness*, or *cerebral epilepsy*.

Special Causes.—Among the organic causes are various structural derangements, as misformation of the head, external injuries, internal tumors or collections of matter. When the disease is functional, the causes which specially excite the paroxysm in the individual predisposed to it, are—strong mental emotions, especially of the depressing kind, as anger, grief, fright; indigestible food, an overloaded stomach, or any source of gastric irritation, may prove an exciting cause; repelled eruptions, and the sudden suppression of customary evacuations, have induced it; exhausting indulgences, either in the exercise of the lower animal propensities, or in the use of stimulants and narcotics, frequently

occasion an attack; confirmed drunkards are peculiarly liable to it; in a few instances the disease has arisen from worms.

Prognosis.—The chance of cure will be favorable or unfavorable as the symptoms do or do not indicate functional derangement or local irritation as the cause. When connected with deficiency or malformation of brain, organic changes, or exhausted nervous power, it is generally, and probably always, incurable.

Treatment.—During the fit very little can be done, on account of the muscular distortions. Cold water, however, should be freely applied to the head, cold compresses to the stomach, and warm applications to the feet. In the intervals, the cure must be prosecuted by a careful attention to the general health; and here we have another condition where the dietetic part of hydropathy is more important than the watery, although both are useful. So utterly powerless for good, if not mischievous, has the drug-treatment proved in this disease, that one of the most experienced of the old school authors, Dr. Armstrong, testifies that he has seen more benefit derived from removing the exciting cause, than from any thing else. "As to diet," his language is, "*simplicity* in the kind of food, and *moderation* in its quantity, is the golden rule." In making the practical application of this golden rule, we should prescribe the dry diet as crusts of good brown bread, roasted potatoes, and good baked or boiled apples, as the leading articles. Caution must be exercised not to distend the stomach unduly with a variety at a meal, of even the blandest articles; very little drink should be taken at meals, and the supper should be extremely light, or what is better, altogether omitted. Among the bathing processes, derivative appliances—shallow-baths, sitz-baths, and foot-baths—should take the lead. As a general rule, they should be of short duration, and frequently repeated, so as to guard against determination to the brain. If the skin evinces considerable torpor or obstruction, the patient should be thoroughly rubbed in the dripping-sheet, or packed occasionally.

Hysterics—Hysteria.—This disease is commonly supposed to be peculiar to the female; but some authors, having noticed all its characteristic symptoms occasionally in the male subject, have described two varieties—*hysteria feminini*, and *hysteria masculini*. It is certainly more frequent in the female, and most disposed to show itself during the menstrual period.

Symptoms.—The precursive signs, which, however, do not always exist, are—a sense of nausea or sickness, flatulency, palpitation, depression of spirits, weeping, crying, etc., without any assignable cause.

The fit soon follows, indicated by a coldness or shivering over the whole body; quick, fluttering pulse; a feeling of acute pain in the head, as though a nail were driven into it; there is often an acute sense of pain in the left side, about the flexure of the colon, with a sense of distension, giving the idea of a ball or globe rolling itself about in the abdomen, and gradually advancing upward till it gets into the stomach, whence, rising to the throat, it occasions a sense of suffocation, as if an extraneous body were pressing there; this feeling has been called *globus hystericus*. The convulsive struggle now commences, which is sometimes extremely violent; the trunk of the body is twisted backward and forward, the limbs are variously agitated, the fists are firmly clenched, the breast is spasmodically beaten, the muscles of the chest are agitated in every way, and the patient bursts into violent paroxysms of laughter, sobbing, or screaming, utters incoherent expressions, and is in a state of temporary delirium. On the cessation of the spasms, there are flatulent eructations, and a copious discharge of limpid urine, the patient usually lies stupid, and apparently almost lifeless, for a short time, but in an hour or so recovers the exercise of sense and motion, without retaining any distinct recollection of what has taken place, but feeling a severe pain in the head, and a general soreness over the whole body.

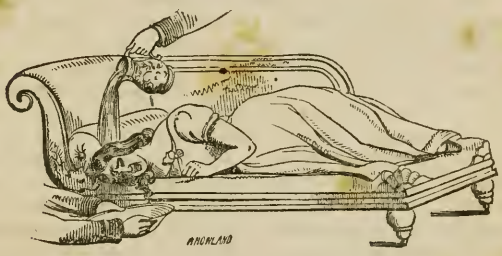
Diagnosis.—Hysteria may be distinguished from epilepsy by the insensibility being only partial; by the sighing and sobbing respiration; by the globus hystericus; by a peculiar trembling of the eyelid; and by the absence of distortion of the features. In a milder and modified form, the paroxysm consists of sudden insensibility, laborious breathing, swollen neck, flushed cheeks, and a closed and trembling eyelid, and the patient comes out of the fit talking incoherently, or crying and sobbing.

Special Causes.—Intense mental emotions, especially grief and anxiety; constipated bowels; excessive evacuations; obstructed menses; plethora; hot, enervating drinks, as tea and coffee.

Treatment.—A hysterical paroxysm is almost the only disease in the treatment of which allopathic and hydropathic practitioners harmonize. It is true the books recommend smelling-salts, asafœtida, fetid spirits of ammonia, ether, castor, musk, valerian, skunk-cabbage, opium, etc., yet the same book-makers are kind enough to tell us they do no good! Says Dr. Guy, author of a Medical Jurisprudence: "Cold affusion is the *only* remedy which can be relied on, and is worth a whole pharmacopœia of antispasmodics." Drs. Hooper, Good, Cooper, Neill, Smith, and Copland—all accredited authors of the drug school—recommend the cold-water practice. And Dr. Alfred Smee, F.R.S.,

surgeon to the Bank of England, etc., gives the following directions, illustrated by a plate, both of which are worth copying:

Fig. 186.



TREATMENT OF HYSTERIA

"Place the head over a basin, and pour water from a jug over the head and chest till the patient becomes chilly and revives. Never use any thing but cold water for the hysterical fit, unless the party turn very cold, when you should discontinue it, and apply warmth to the feet. I once saw the cold applied for three hours, but the patient was quite well the next day."

To correct the condition on which the hysterical paroxysms depend, we must, during their intervals, employ the abdominal bandage, frequent hip-baths, and occasional dripping-sheets or packs. In almost all cases the bowels are more or less constipated, and the diet must be regulated accordingly.

TREMOR—TREMBLING.—A tremulous agitation of the head, limbs, or both, especially on some voluntary exertion, often occurs in the progress of acute and chronic diseases. But in some instances the affection appears disconnected, as far as we can observe, with any distinct primary disease, although it is manifestly in all cases symptomatic of nervous exhaustion. It is produced by violent exertion, vehement indulgence of the mental or sexual passions, by various poisons, as mercury, lead, opium, tea, tobacco, and is only to be cured by religiously and perseveringly abstaining from all the debilitating causes which conduce to it; in brief, all the voluntary habits must be thoroughly orthotherapeutic.

DELIRIUM TREMENS—DRUNKARD'S DELIRIUM.—"This disease,"

says Dr. Doane, "is unfortunately very frequent in the United States;" to which may be added, that hardly a day passes without some suicide or murder being chronicled in the newspapers as committed under its influence; nor can any different result be expected, so long as our law-making representatives authorize and commission by special license, one class of our fellow citizens to poison all the other classes by selling them intoxicating drinks.

Symptoms.—Delirium, during which the patient recognizes those about him, answers questions rationally, and does hurriedly what he is told to do; the hands, lips, and muscles generally, tremble more or less, especially when speaking, or making any voluntary effort; the patient is restless, sleepless, talks incessantly, and evinces a great anxiety to be doing something; he fancies that he is surrounded with enemies, or that he is in a strange place, from which he is constantly endeavoring to escape; or he thinks some great evil has befallen him, or is impending; he is suspicious of those about him, and is tormented with frightful images or sounds; and often appears to be searching earnestly in unlikely places after something on which his mind is intent. There is frequently profuse perspiration, a frequent pulse, and a moist and slightly furred tongue. In the most dangerous attacks the patient is himself not violent; but in more moderate cases, when the muscular energies are less prostrated, he is sometimes extremely furious.

Special Causes.—The habitual employment of alcoholic beverages in most cases; in a few instances the disease has arisen from the use of opium, tobacco, and tea. The immediate exciting cause is generally sudden abstinence from the accustomed stimulant, particularly if such abstinence has been preceded by an unusual debauch.

Treatment.—When the patient is not ungovernable the wet-sheet pack is the most soothing process we can employ; in other cases we must rely mainly on the tepid shallow-bath, accompanied with active and persevering friction; the dripping-sheet is also one of the best appliances when considerable feverish heat exists. When the stomach is foul, evinced by bilious taste and fetid breath, a warm water emetic is useful, or even the copious drinking of warm water without emesis; and a daily tepid injection is almost always serviceable. Cold cloths should be applied to the head, and when there is the least indication to coldness of the feet, the warm foot-bath should be prescribed. Either of the general baths may be repeated two or three times daily, or all of them may be alternated. When the patient is too irritable or restless to permit any general bath to be employed in the ordinary way, wet towels may be applied to the chest, abdomen, and thighs, and frequently renewed; and copious cold water injections may be thrown

up the bowels. In all cases cold water may be drank to any extent the thirst demands.

In relation to drug-treatment in this disease, the allopathic school is about equally divided between large doses of opium and liberal draughts of brandy. Dr. Johnson, in his "Domestic Hydropathy," tells us that the only way to cure the disease is to procure sleep; and that there is no way of procuring sleep but by means of large doses of opium; but the doctor climaxes his own climax of absurdity when he adds that, although the opium induces a sleep, which cures the delirium tremens, the patients often die in the sleep which the opium induces!

Shaking Palsy.—Paralysis Agitans.—The term palsy, is not strictly applicable to this disease, for the reason that, although there is a diminution of muscular strength and of voluntary power in the part affected, there is no absolute loss of muscular motion, nor of sensation, one of which, or both conditions, being always present in genuine paralysis.

Symptoms.—"Permanent agitation of the head or limbs without voluntary excitement; body bent forward, with a propensity to run and fall headlong; usually appearing after maturity." The first symptoms usually noticed are a slight sense of weakness with a proneness to trembling, commonly in the hands and arms, but sometimes in the head. These increase gradually and almost imperceptibly, until, in a few months, the legs begin to be similarly affected, and the body bends forward. As the disease progresses, the tremor becomes constant and universal; the muscles refuse to act in obedience to the will; and, should the tremulous agitation be stopped in one limb by a sudden change of posture, it soon makes its appearance in another. When he attempts to walk he is thrown on his toes and forepart of his feet, and thus compelled to adopt a running pace. In the advanced stages the tremulous motions also occur during sleep; the bowels become torpid, mastication and deglutition are difficult, and the saliva continually dribbles from the mouth. Toward the closing scene, the power of articulation is lost, the ordinary evacuations are involuntary, and coma with slight delirium occurs.

Special Causes.—Long exposure to damp, unwholesome vapors, nervine excitants, as ardent spirits, strong tea or coffee, narcotic poisons, as tobacco, nightshade, etc.; metallic vapors, especially mercurial; drastic purgatives. Those who are employed in mines, and hence constantly exposed to the exhalations of mineral vapors, are the most frequent and severe sufferers from this disease.

Treatment.—As the proximate cause is simple debility of the whole

nervous system, the simple indication of cure is to strengthen the system; the only point of skill is in adapting the processes to the particular condition of the patient. The best general plan is, a daily ablution, or thorough rubbing in the dripping sheet, early in the morning, one or two shallow or hip-baths in course of the day, followed by active friction with the dry sheet or dry hand; and where the system has been evidently poisoned with metallic emanations, moderate sweating, either in the wet or dry sheet, as often as twice a week. Cold water should be drank rather freely, and cold injections employed daily, just preceding the time when the bowels are or should be evacuated. The wet girdle to the abdomen is worth something. The food should be of the most bland and unconcentrated kind, as cracked wheat, dry brown bread, hominy, potatoes, baked, boiled, or uncooked apples, etc.

Nothing can be more obvious than the nature of this affection; and nothing can be more ridiculous than the reasoning on the subject in medical books, nor more absurd than the practice recommended. Thus Bonet ascribes the affection to a diseased state of some portion of the cerebrum; and Mr. Parkinson fixes the seat of the disease in the cervical portion of the spinal marrow, from which he *supposes it to shoot up by degrees to the medulla oblongata!* "The remedial process," says Dr. Good, "is not very plainly indicated;" yet he recommends *vesicatories* and other stimulants to the neck; *setons*, *caustics*, and even the *red hot iron* applied to different parts of the spine; and for internal remedies, *prussic acid* and *arsenic!!* Dr. Elliotson treated several cases with *copious bleeding*, *blisters*, *mercury*, *setons*, *zinc*, and *sub-carbonate of iron;* but save in a single instance, no benefit whatever was experienced. Such is a fair specimen of the "medical science" of the day.

Chorea—St. Vitus's Dance—Chorea Sancti Viti.—This disease is characterized by "alternately tremulous and jerking motion of the face, legs, and arms, especially when voluntarily called into action, resembling the grimaces and gestures of buffoons." The name of St. Vitus's Dance—in colloquial French, *Dance de St. Guy*—according to Horstius, was given to this affection, or some other resembling it, in consequence of the reputed cures produced on certain women of disordered mind, upon their visiting the chapel of St. Vitus, near Ulm, and dancing from morning till night, or until completely exhausted. Many marvelous stories are related of these dancers by the old writers, some of whom, in their easy credulity, give the patients credit for having danced a whole week or whole month together.

Symptoms.—The disease appears most frequently from the eighth to

the fourteenth year; and attacks boys and girls indiscriminately, but chiefly those of weak or impaired constitutions. Its approaches are slow, and are marked by variable and often ravenous appetite, loss of usual vivacity, swelling and hardness of the lower belly, and, in general, constipated bowels, which symptom becomes aggravated as the disease advances; slight, irregular, involuntary motions of different muscles, particularly those of the face, precede the more violent convulsive agitation. The convulsive motions present a great variety of appearances. The muscles of the extremities, of the face, those moving the lower jaw, the head, and the trunk of the body, are each at different times, and in different degrees affected; the patient walks unsteadily, his gait resembling startings or jumpings; and sometimes walking is impossible. The agitation of the muscles is constant during the day, but ceases during sleep. The eye eventually loses its lustre, the complexion becomes pale, and the countenance is expressive of languor and vacancy, giving the patient a fatuitous appearance.

Special Causes.—Repelled eruptions; lead; mercury; constipation; narcotics; worms. Dr. Good remarks, "The predisponent cause of this disease is an irritability of the nervous system, chiefly dependent upon debility, and particularly a debility of the stomach and its collatitious organs." The passage is certainly very fine, but if it has any particular meaning I am unable to discover it. Dr. Armstrong gives us a less eloquent but more practical view of the subject. "Chorea," says he, "is always preceded by some disorder of the stomach, liver, or bowels; and the affection which takes place in the brain and spinal cord seems to be secondary. You may always trace its rise to some improper diet."

Treatment.—The whole plan of medication named in the preceding disease is applicable here. The great majority of cases, however, will be found in connection with torpid liver, costive bowels, and obstructed skin; for which a thorough daily ablution, an injection every day, or every other day, and a diet of brown bread, wheaten grits, potatoes, and a moderate quantity of the best fruit, will be sufficient.

Raphania.—This disease was first described by Linnæus, and so named because he supposed it to arise from eating the seeds of a species of wild radish, the *raphania raphanistrum.* Other writers have imputed it to spurred rye or ergot, and others to still other vegetable poisons. The symptoms indicate the operation of a narcotic; and probably several plants, and perhaps also different vegetables in a state of disease or decay, or in a particular stage of putrefaction, may generate the poisonous element.

Symptoms.—The disease commences with cold chills and lassitude, headache, and anxiety about the præcordia; these are followed by spasmodic twitching, and afterward rigid contraction of the limbs or joints, with excruciating pains, often accompanied with fever, coma, or delirium, a sense of suffocation, and a difficulty of articulation. It continues from one to four weeks, and when fatal, terminates with a diarrhea, or convulsive paroxysm.

Treatment.—Moderate cold water-drinking, the free employment of cold water injections, the wet-sheet pack daily, or twice a day, when there is considerable feverishness, and at other times frequent tepid ablutions, constitute the leading measures of the curative plan.

Note.—An anomalous disease has, during the last ten years, prevailed in different parts of this country, more frequently in our Western states, to which the physicians have been unable to assign a name, and which strikingly resembles the disease before us. If it is not identical so far as its causes are concerned, it is sufficiently similar in character to be appropriately treated on the same plan.

Barbiers—Beribery.—This affection is probably unknown in this country. It is common to various parts of India, and of very frequent occurrence in Ceylon, and on the Malabar coast.

Symptoms.—General lassitude, painful numbness of the whole body, stiffness of the legs and thighs, and a spasmodic retraction of the knees, and inability to walk, are among the early symptoms. In some cases the limbs are paralytic, and spasmodic actions affect irregularly the muscles of the body, chest, and larynx. In a later period of the disease, the legs swell, and subsequently the whole body becomes bloated and œdematous, the internal cavities are filled with fluid, and, in fatal cases, extreme difficulty of breathing, great restlessness, intolerable anxiety, constant vomiting, and general convulsions, close the scene.

Special Causes.—Sudden transitions from a dry to a damp atmosphere, and from sultry calms to chilling breezes, are assigned, by medical writers, as the principal causes. But as the subjects of its attack are almost invariably persons of weakly constitutions, irregular lives, debauched habits, or liquor and tobacco topers, and above twenty years of age, it is evident that the causes named are only exciting circumstances, when the constitution is predisposed by debility, or the bad habits which cause the debility.

Treatment.—A daily ablution and half-bath, plain food, regulated exercise, according to the strength, and cold injections, would seem adapted to the therapeutic indication, which is essentially tonic.

Cough.—There are three kinds of cough which are ranked as idiopathic diseases by authors—*common cough*, *dry cough*, and *hooping-cough*. They are all attended with a sonorous and violent expulsion of air from the lungs, from a spasmodic or convulsive action of the respiratory muscles; the first and second varieties are often symptomatic of a multiplicity of other diseases.

Symptoms.—*Common cough*, or *humid cough*, is accompanied with an expectoration of a mucous or serous fluid. The *dry cough* is so called because it is unattended with expectoration. In the *hooping-cough—kin-cough, pertussis*—it is accompanied with a shrill, reiterated hoop; vomiting is also a frequent incident. The last variety is contagious under certain circumstances, which are not very well ascertained. The disease comes on with the usual symptoms of catarrh; the excretion is always viscid, though small in quantity at first. The hoop, or sonorous spasm, is frequently violent, the face becoming turgid and purple from suffusion, and the eyeballs swollen and prominent. The paroxysms at first recur several times during the day, are most violent toward evening, and least so during the night. After the disease has continued some time, they return only in the morning and evening, and toward the end of the disease in the evening only. The violence of the disease varies from the slightest indisposition without feverishness, to the severest spasmodic agitation, attended with high and dangerous fever. Its duration varies from one week to one year, the usual period ranging from three weeks to three months. The pathognomonic sign of the hooping-cough is the noisy inspiration accompanied by a lengthened hissing. It is generally a disease of children, and the danger is in the inverse ratio to the age.

Special Causes.—The first and second varieties are produced by "colds," or the inhalation of irritating dust, vapors, or other extraneous particles. The third is the result of specific contagion.

Sequelæ.—Bronchial inflammation, consumption, and dropsy in the head, are commonly specified in medical books as among the sequelæ of all forms of cough, but more especially of the hooping kind. They are more commonly the sequelæ of the poisonous cough mixtures with which children are generally so liberally fed.

Treatment.—All forms of idiopathic cough may be very easily managed. Cold water should be freely drank; the diet must be plain and rather abstemious; and one or two ablutions daily, followed by thorough friction or active exercise, are, in the majority of cases, amply remedial. When the system is inclined to feverishness, the pack, prolonged sufficiently to produce moderate sweating, may be necessary; and when there is an inflammatory state or fixed soreness of any part of

the chest or lungs, the chest-wrapper should be applied. When the paroxysms of hooping-cough are very severe and suffocative, a warm water emetic is advisable; and in bad cases a tepid half-bath and foot-bath should be added to the daily processes.

The allopathic treatment of cough affords a melancholy reflection for the intelligent philanthropist. How many little children are poisoned out of their constitutions by the multitudinous cough-medicines of the day! It is true the regular doctors declaim against the irregular nostrums, by which children are poisoned through the media of lozenges, medicated candies, and narcotic syrups; but unfortunately their own prescriptions are not a whit less poisonous. The most deadly drugs of the materia medica are the active principles of nearly all the popular cough remedies, and chief among them all are tartar emetic and opium; while henbane, deadly nightshade, poison hemlock, and prussic acid, are in the next highest class of *remedies!*

Dyspnœa.—The generic symptoms of this disease—the *anhelation* of Dr. Good—are: permanent difficulty of breathing, with a sense of weight in the chest. Like cough, dyspnœa is symptomatic of an extensive range of diseases.

Symptoms.—Idiopathic difficulty of breathing is distinguished into two varieties, *chronic*, and *exacerbating*—the *orthopnœa* of authors. In the former the breathing is uniformly short and heavy, and usually accompanied with a cough; in the latter it is deep, stertorous, and suffocative, subject to sudden and irregular exacerbations, and relieved by an erect position.

Diagnosis.—Dyspnœa is distinguished from asthma by the breathing being permanently yet irregularly affected; whereas in asthma the difficulty is recurrent with considerable intervals of perfect ease.

Special Causes.—Irritating dust, or pulverulent particles to which stone-hewers, glass-cutters, china-manufacturers, workers upon metals, millers, starch-makers, horn and pearl-workers, weavers, wool-carders, and feather-dressers, etc., are subject; the vapor of mineral acids, metallic exhalations, narcotic vapors, various structural derangements, as corpulency or obesity, hydatids, tumors, indurations, adhesions, etc. In some instances, a condition of *emphysema*, or preternatural dilatation of the air-cells of the lungs, resulting from catarrh, has produced both dyspnœa and asthma.

Treatment.—When the cause is organic, little more can be done than to mitigate the sufferings of the patient by a careful attention to the general health. When the disease depends on functional derangement, the general management is the same as for common cough. A

moderate douche to the spinal column would be of additional service in most cases by promoting absorption; and where patients have been exposed to poisonous vapors or effluvia, moderate sweating is desirable Sauvages relates the case of a female who was bled *three times a day*, until the venesections amounted to *two thousand*, without benefit! By warm bathing and active friction, so as to produce free perspiration she was cured in ten days.

Asthma.—This affection is, too, much more frequently a symptomatic than an idiopathic affection. Its pathognomonic characteristics are: recurrent and temporary difficulty of breathing, accompanied with a wheezing sound, and sense of constriction in the throat, with cough and expectoration. Authors distinguish two varieties, *dry, convulsive*, or *nervous—asthma siccum*; and *humid*, or *common—asthma humidum.*

Symptoms.—In the *first* variety the attacks are sudden, violent, and of short duration; the sense of constriction is hard, dry, and spasmodic; cough slight, expectoration scanty, and only appearing toward the end of the paroxysm. In the *second* variety the paroxysm is gradual and protracted; the constriction heavy, laborious, and humid; cough violent; the expectoration commences early, is at first scanty and viscid, but afterward copious, and affording great relief. In many cases the attack is in the night, and most frequently an hour or two after midnight.

Special Causes.—Nearly all the causes named in the preceding disease may produce this. It is frequently caused by turgescence, or swelling of the liver or spleen, which impedes the motions of the diaphragm, or interrupts the supply of nervous influence. Strong mental emotions, repelled eruptions, suppressed discharges, rank odors, foggy, misty, or damp weather, indigestible food, and other dietetic errors, are frequent exciting causes. The predisposition is sometimes occasioned by malformation of the chest, small size of the glottis, dyspepsia, all of which may be conditions of hereditary transmission. Dr. S. Cooper names among the occasional causes, "the influence of light and darkness"—an idea altogether too diffuse.

Treatment.—Medical authors admit that asthma is seldom cured drugopathically, yet console themselves with the reflection that patients seldom die of the disease, *as such*, or until it takes some other form; hence an opportunity is afforded to *try* any kind of medication that fact or fancy can suggest. It is true that expectorants and nauseants, as squills and antimony, and relaxants and debilitants, as tobacco, coffee, gin, saltpetre, and bleeding, generally relieve the paroxysm for the time, at the expense, if frequently repeated, of the total ruin of the

digestive powers and nervous system; and that emetics, especially of lobelia, have entirely suspended the symptoms of the disease in the humid variety, for a longer or shorter period, without any great injury to the constitution; and this, I believe, is all that can be said in favor of the popular practice.

The rubbing wet-sheet, pack, and douche, with the chest-wrapper, are the leading processes. Any of the other bathing appliances may be useful or necessary in particular cases, but these are applicable and important in the great majority. When the digestive organs are strongly implicated, the tepid shallow-bath is excellent, and then the abdominal bandage may be substituted for the chest-wrapper. Asthmatic patients can usually take three or four baths daily with advantage. The following combination I have employed successfully in several cases: Dripping-sheet five minutes, followed by the douche three minutes, on rising; at ten to eleven A.M., wet-sheet pack forty-five to sixty minutes, followed by shallow-bath at 72°, ten minutes; at four P.M., sitz-bath at 65°, fifteen to twenty minutes, or *shallow* foot-bath at 65°, five to ten minutes. Where there is a good degree of animal heat, a dripping-sheet at bed-time is very serviceable. The bowels must be kept free, by tepid or cool injections, if necessary, and the patient may generally drink six or eight tumblers of water in the forepart of the day. Equally important, and perhaps more so, is the diet. Here we have another opportunity to magnify "the hunger-cure." In all cases the diet should be simple and unconcentrated, and in those cases connected with or caused by diseased livers or spleens, or primary dyspepsia, it must be rigidly abstemious; and even this should be composed principally of the articles named in a former part of this work under the head of *dry diet*, or something similar.

During the paroxysm we should palliate and abbreviate the sufferings of the patient as much as possible, by exposing him freely to the cold air—which is, indeed, what his feelings most intensely desire, and which is always safe while the fit is violent—giving him warm water to drink, even to the extent of vomition, and applying the warm half or hip-bath; or when the breathing is so laborious that he is obliged to sit erect, the hot fomentation to the chest and abdomen.

LARYNGISMUS—LARYNGISMUS STRIDULUS.—This complaint is known by the various synonyms of *spasmodic croup, spasmodic asthma of children, child-crowing, crowing inspiration, angina stridula.*

Symptoms.—The disease consists essentially of a sense of spasmodic suffocation in the larynx, which usually comes on suddenly in the night, attended with a struggle for breath, and a shrill, croaking sound of the

voice, or crowing inspiration, somewhat analogous to croup; the countenance is flushed and swollen, and in the severest cases convulsions occur. Dr. Good names "troublesome cough," as among the pathognomonic symptoms, while Hooper says it is "unattended by cough." The symptom in controversy is merely incidental. This disease sometimes, though rarely, attacks adults.

Diagnosis.—It is distinguished from croup by the attack being more sudden, and the symptoms relaxing or intermitting; the freedom of the breathing during the intervals; the absence of febrile or catarrhal symptoms; and usually the presence of hot swollen gums.

Special Causes.—Repelled eruptions, especially of the head, face, or neck; intestinal irritation from worms; indigestible aliment; enlargement of the glands of the neck and chest; cold, and teething are sometimes exciting causes. An œdematous swelling of the mucous folds in the ventricles of the larynx, has been supposed by some authors to be the proximate condition on which this affection depends.

Treatment.—The ordinary drug-treatment is, an antimonial emetic, a calomel cathartic, an opium anti-spasmodic, and a Spanish-fly vesicatory—a plan of medication far more dangerous than the disease itself. Several folds of wet-cloths well covered with dry to the throat, a tepid bath followed by the dry pack, or by putting the patient in bed, well covered so as to promote perspiration, free warm water-drinking, and a tepid injection if the bowels are not entirely free, is the plan of a safe and successful treatment.

Incubus.—Authors distinguish two varieties of incubus, one of which is called *nightmare*, and the other *daymare*. The ancient Anglo-Saxon name for this affection was *elf-squatting*—*elf sidenne*—so denominated because of the imaginary resemblance of the sudden sense of an oppressive and suffocative weight on the chest, to the feeling produced by some hideous monster lying on the chest.

Symptoms.—Both varieties are attended with sighing, suffocative difficulty of breathing, intercepted utterance, or entire temporary inability to speak or move, with a sensation of some external weight pressing heavily on the chest, from which the patient awakens affrighted. In the *daymare*, which occurs during wakefulness, the sense of pressure is severe, and is extended over the abdomen; the respiration is frequent, laborious, and constricted; the eyes are fixed; the sighing is deep and violent; and the intellect is undisturbed. The *nightmare* is the more common form; it occurs during sleep, which is interrupted with a violent struggle and tremor; the pressure on the chest seems to be that of some hideous monster or phantom; it is usually preceded

by a painful or troubled dream, during which the patient imagines some position of danger, as a high building, steeple, or precipice, from which he is about to fall; or fancies some horrid accident or calamity, as murder or suicide, or conceives an attack from some enemy, hag, spectre, ghost, or goblin, whose grasp he is incapable of eluding.

Special Causes.—It is generally occasioned by excessive fatigue, exhaustion from want of sleep, an overloaded stomach, or some indigestible irritant in the alimentary canal. Dyspeptics, and nervous females are very liable to it. All persons who eat heavy or late suppers are in a state of predisposition.

Treatment.—Shaking, agitating, or awakening the patient will immediately arrest the paroxysm, which, by the way, seldom lasts a full minute. The preventive management is found in a light evening meal, a hard bed, and sleeping on rather high pillows, with the body a little inclined on the side. The curative plan may be found in a daily bath, plain quality and moderate quantity of food, and a free daily action of the bowels, which should be promoted by injections if necessary.

Bronchitis.—Although this disease is attended with more or less suffocation and spasmodic respiration, it is really caused by, or rather is in fact, an inflammatory affection of the mucous membrane of the bronchial ramifications. It is frequently the precursive condition of consumption; and not unfrequently the treatment pursued by the medical man, rapidly hastens on the fatal termination, by developing tubercles in the lungs. It is comparatively a modern disease, and is alarmingly on the increase, owing to the luxurious and enervating habits of fashionable society.

Authors distinguish the disease into the *acute* and the *chronic* forms; but as the former is not essentially different from a severe catarrh, or mild pneumonia, either in its symptoms, progress, or termination, it is only what is usually known as *chronic bronchitis* that concerns us here. Irritative and inflammatory affections of the mucous membrane of the throat, fauces, larynx, pharynx, and adjacent parts, are often confounded with bronchitis proper: and are described as and confounded with this disease under the various terms of *pulmonic erysipelas, pituitous catarrh, bronchial angina, suffocative catarrh, catarrhal bronchitis, bronchial peripneumony, pulmonary catarrh, catarrhal fever, acute mucous catarrh, acute suffocative catarrh, etc.*

Symptoms.—The disease commences with more or less cough, irritation about the throat, sense of tightness in the chest, and shortness of breath, which do not, for a considerable time, attract much attention. The first difficulty which is generally noticed as of importance,

is a sense of roughness, with frequent attempts to clear the throat, accompanied with or followed by titillation of the larynx, exciting a dry, hard cough; these are, after a longer or shorter period, succeeded by some degree of hoarseness of voice, with a sense of tightness across the chest, and sometimes a slight pain or diffused soreness upon coughing, or inflating the lungs fully by a prolonged and deep inspiration. As the disease progresses dyspnœa comes on, which is increased by exertion, coughing, or exposure to cold, and some degree of expectoration occurs, at first scanty, then more copious and of a glairy appearance, like the white of an egg; and in still more advanced stages it becomes muco-purulent or purulent and sometimes tinged with blood. In some cases all of the symptoms are abated every summer and exacerbated every winter for several years in succession. The constitutional disturbance is marked by lassitude, pains in the limbs and back, slight shiverings or chills, frequent and feeble pulse, feverishness after dinner or toward evening, and eventually night sweats. In some cases the principal local symptoms are, hoarseness or loss of voice, a hard, dry cough, with a sense of soreness, rawness, dryness, and heat under the sternum; in most cases the cough is always excited by a full inspiration; in a few instances the breathing is rattling or wheezing, owing to the air struggling through the viscid mucus accumulations in the bronchi; and sometimes, though rarely, the voice is scarcely altered, while the breathing, on the slightest disturbing causes, becomes painfully spasmodic, in consequence of the tenacious, glaring secretion becoming concreted upon the lining membrane of the bronchial tubes.

Special Causes.—All the causes of consumption, may, under a modified set of circumstances, produce this form of pulmonary disease. But there is no doubt that the increasing quantity of tea, coffee, and tobacco consumed by our people is a special cause of the increasing prevalence of this disease among us.

Treatment.—Nearly all that has been said in relation to the management for consumptives will apply here; and to that the reader is referred. A majority of the patients come to us bundled up in flannels, extra silk, double stockings, India rubbers, and other contrivances for keeping off the cold, to which these very contrivances—usually per advice of the doctor—have rendered them extremely susceptible. All these worse than superfluities of dress must be removed by degrees, as the patient's skin becomes accustomed to the contact of cold air and water. The best processes to commence with are generally the sponge or towel-bath, or rubbing-sheet, accompanied with active though not severe friction. After a few days the chest-wrapper should be applied, and all the derivative appliances—half, hip and foot-baths—employed,

as frequently and as cold as the patient can bear without disagreeable or prolonged chilliness. Precaution is necessary also, to avoid greatly disturbing the circulation or respiration, by too great a shock or too cold an impression. When the general heat of the surface is equal to, or above the natural standard, the pack should be resorted to daily, or tri-weekly. Those patients who are particularly troubled with short breath, and are easily fatigued by exercise, should walk regularly and perseveringly in the open air, within the bounds of much fatigue at first, and gradually increase the distance.

At best bronchitis is a dangerous and most obstinate disease, and patients ought to understand before commencing a course of water-treatment, that time and patience are important considerations. I have known a few cases recover in ten or twelve weeks, but a majority require careful treatment from six to twelve months, while many cases cannot be thoroughly cured in less time than from one to two years. This may seem like a long and discouraging process; but if the sufferer can draw any consolation from the fact that no other method *ever cures at all*, he will find abundant evidence of the fact if he will look over the long catalogue of remedies which are put forward in medical books; a list whose formidable length is alone conclusive that no real confidence is felt in any one of its ingredients, nor in all together.

Perhaps a page or two of this work could not be more instructively occupied than in presenting a fair sample of the interminably experimental nature of drug-treatment—as few unprofessional persons have ever dreamed of the confusion which pervades medical books on the subject of prescribing remedies. As an illustration, therefore, I will copy in full, from *one* standard work—Copland's Medical Dictionary—all and singular the remedies and curative processes, commended for the treatment of the different states, forms, stages, and complications of the disease under consideration. These may be conveniently collated under the heads of classes, processes, fumes and fumigations, inhalations, drugs and preparations, and regimenal directions.

1. *Classes of Medicines.*—Acids, alkalies, emetics, purgatives, expectorants, laxatives, tonics, refrigerants, stimulants, antiphlogistics, demulcents, cathartics, emollients, rubefacients, mucilages, vesicatories, revulsants, counter-irritants, diaphoretics, diuretics, sedatives, bitters, alteratives, attenuants, antispasmodics, narcotics, diluents, enemata, anodynes, and narcotics.

2. *Processes of Medication.*—General bleeding by the lancet; local bleeding by leeches; topical depletion by cupping; lancing the gums (in children); blisters applied to various parts; burning the skin by hot turpentine; cauterizing the skin by moxa burnings; pustulating the skin by ointment of tartarized antimony; leeches applied over the sternum, leeches applied behind the ears; leeches applied below the occiput; cupping on the nape of the neck; issues; setons the warm-bath; sponging the body with warm water and vinegar; sponging with a warm lotion of nitro muriatic acid; astringent gargles; cooling

gargles; antiseptic gargles; demulcent linctuses; lotions of common salt and water; semicupium; pediluvium; poultices; liniments; and fomentations.

3. *Fumes and Fumigations.*—Of tar, camphor, benzoin, amber, frankincense, myrrh, storax, cloves, sulphur, assafœtida, and various turpentines and balsams; also the smoking of balsam of tolu.

4. *Inhalations.*—Of chlorine gas; fumes of iodine; watery vapor holding in solution various narcotics; sulphuret of iodine; liquor potassii iodidi concentratus; tinctures and extracts of henbane and poison hemlock, with camphor; fumes of the various balsams, terebinthinates, and odoriferous resins; also of vinegar.

5. *Drugs and Drug preparations.*—Antimony in full doses; antimonial wine; compound powder of antimony; tartrate of antimony and potassa; solution of potassio tartrate of antimony; James' powder; blue pill; calomel; corrosive sublimate; mercury with chalk and rhubarb, followed by castor oil and small doses of ipecacuanha; Dover's powder; wine of ipecacuanha; opium; camphorated tincture of opium; syrup of poppies; camphor; camphor mixture; ammonia; carbonate of ammonia; liquor of the acetate of ammonia; conserve of roses; capsicum; olive oil; white willow bark; Iceland moss; Prussic acid; aloes; senna; crèasote; preparations of steel; carbonate of soda; bi-carbonate of soda; bi-tartrate of potash; compound tragacanth powder; sulphur; balsam of sulphur; sulphuret of potassium; sulphuric acid; sulphuret of ammonia; sulphuret of copper; sulphate of zinc; sulphate of quinine; sulphate of alumina; flowers of sulphur; sulphate of iron; various preparations of iodine; extract of dandelion; extract of hops; extract of conium; extract of hyoscyamus; extract of sarsaparilla; extract of gentian; extract of poppy; extract of lettuce; belladona; trisnitrate of bismuth; saltpetre; squills; decoction of squills; tincture of squills; infusion of squills; oxymel of squills; tincture of hyoscyanus; colchicum; infusion of colchicum seeds; digitalis; chlorate of potash; tartrate of potash; chlorate of lime; columbo; decoction of Peruvian bark; infusion of marrabium; chloride of calcium; liquorice; mezeron bark; cinchona; uva ursi; gum arabic; oil of turpentine; myrrh; vinegar; marsh mallows; decoction of polygala; linseed tea; ammoniacum; galbanum; senega; nitrous spirit of ether; kermes mineral; mixture of sweet almonds; and syrup of tolu.

Regimenal Directions.—Barley water: tamarind water; lemonade; vegetable acids; sulphurcous mineral waters; Brandish's alkaline solution; ale; beer; imperial; red wines of Bordeaux and Burgundy; decoction of Iceland moss; jellies; mucilaginous and emolient soups; new-laid raw eggs; shell-fish; and white fish, dressed with olive oil, or the oil obtained by boiling their own livers.

There, reader, you have the whole apothecary shop and most of its appurtenances before you. I submit whether these *evidences* of cure do not *prove too much?*

Before dismissing this subject, I must advert to the cauterizing practice which has lately become so popular in bronchial and throat affections. Some physicians are doing an extensive business in the application of nitrate of silver to all sorts of affections of the mouth and throat; and some kind of machinery has recently been invented by which the dust of lunar caustic can be inhaled into the lungs. It is true that caustics will often cure ulcers in the mouth, or about the fauces or tonsils; but they are very liable to reappear, and, moreover, they can be better cured without the caustic than with it. But where the lungs are seriously affected, or the bronchial ramifications in a state of actual inflammation, the application of the caustic very frequently aggravates the affection of the pulmonary tissues, as I have known in

very many cases. This practice may be safe in purely local affections of the throat, but it is certainly hazardous where the lungs are also implicated.

Sternalgia—Suffocative Breast-Pang.—This affection is described by various writers under the varied names of *angina pectoris*, *syncope anginosa*, *orthopnœa cardiaca*, *arthritic*, or *dolorous asthma*, and *sternocardia*.

Symptoms.—The disease is characterized by a violent pain about the sternum, or breast-bone, extending toward the arms, attended with anxiety, difficulty of breathing, and a sense of suffocation. Authors describe two varieties: *acute*, in which the attack comes on suddenly during exercise, with a tendency to faint, and which is relieved by rest; and *chronic*, in which the paroxysm is less violent, of longer duration, recurring frequently, and excited by slight causes, attended with palpitation, and not relieved by rest.

Special Causes.—Corpulent, gouty, rheumatic, and debilitated persons are especially the subjects of its attacks; hence the usual causes of obstruction and nervous exhaustion may be regarded as its predisposing influences, and, indeed, it is always symptomatic of some general morbid condition. Laennec regarded angina pectoris as a species of neuralgia of the heart; and some authors have imputed it to ossification of the coronary arteries of the heart—a supposition purely fanciful.

Treatment.—The paroxysms can be relieved by a warm water emetic, a dripping-sheet or douche, or the pouring head-bath. The cure depends on a well-regulated diet, and a daily cold-bath.

Pleuralgia—Pleurodyne.—Both of these terms import pain in the side, and are employed to denote a pungent pain in the side, with difficulty of breathing, which difficulty is owing to an acute distress or ache produced by every attempt to inflate the lungs. It is distinguished from pleurisy or pneumonia by being unattended with fever or inflammatory symptoms.

Symptoms.—In the *acute* or severe form, which is called *stitch in the side*, the pain is sudden and temporary, supervening on exercise, and being relieved by repose. In the *chronic* form the pain is permanent, augmented by pressure, and there is inability of lying on the side affected.

Special Causes.—The first variety is generally occasioned by hard running, jumping, lifting, or other violent exertion, but is sometimes symptomatic of flatulence hysteria, hypochondriasis, etc. The second

variety is in some cases symptomatic of structural derangements, as aneurism, malformations, adhesions, or other organic lesions; more commonly it is caused by plethora, transferred gout or rheumatism, chronic inflammation of the liver or spleen; and more frequently still it is produced by the barbarous custom of lacing the chest, and the mischievous habit of leaning against a hard desk, or bending the trunk of the body forward while writing, reading, sitting, sewing, etc.

Treatment.—The *stitch* gradually subsides on moderating the exercise, or by resting. It may be promptly relieved by a handkerchief, or tight bandage, the hot fomentation, or warm douche. In the chronic form we must have regard to the producing cause, or the primary malady. The abdominal girdle is, however, always in order.

HYDROPHOBIA—CANINE MADNESS—RABIES—ENTASIA LYSSA.—Hydrophobia literally means *water-dread*, a symptom which generally, though not uniformly, attends the disease, and is, in some instances, found in other diseases.

Symptoms.—The disease generally commences with pain, uneasiness, or some unusual sensation in the wound, or bitten part, followed by pains darting along the course of the nerves. But in some few cases these local symptoms do not appear. The first constitutional symptoms are, wandering pains in different parts of the body; stiffness of the neck and throat; restlessness and irritability; the patient is drowsy or depressed; he is observed to sigh deeply and frequently; a principal feature among the early symptoms is a sudden and deep inspiration with which the patient is frequently affected. He is also severely agitated by the impression of cold air, the glare of a mirror, the noise of a pump, the sound of water, etc. As the disease progresses, its true nature becomes revealed by the difficulty of swallowing liquids, which increases until the sight or sound of water causes him to start with dread and horror; the attempt at deglutition is hurried, accompanied with sobbing, and followed by convulsions. The countenance now expresses indescribable alarm, anxiety, and suspicion; the eyebrows are contracted; the eyes are wild, staring, and glassy; there are urgent thirst, hot and dry skin, painful efforts to vomit, and intolerance to light and sound. The sufferer spits out the frothy mucus and viscid saliva between his closed teeth, with vehement strainings, which occasion a singular sound; talks in a loud, important, authoritative tone, and often screams violently. In some instances the intellect seems unaffected to the last, but in other cases he is wildly delirious, and talks incoherently and incessantly. Toward the end, convulsions become more frequent, and the patient dies asphyxiated or exhausted

The duration of the disease is usually two or three days; in some rare instances it has continued eight or nine days. The symptoms also manifest considerable diversity. Sometimes the wounded part exhibits nothing more than a slight lividity, and sometimes the cicatrix opens afresh, and oozes forth a little colored serum. In some cases the patient is furiously mad, bites himself and others, also the bedclothes, and whatever else is within reach.

Special Causes.—This disease is usually communicated by the bite of a rabid animal; but it may originate spontaneously. The nature and origin of the virus, or infecting principle, are unknown. But that putrid flesh and decomposing offal, on which so many dogs, cats, hogs, etc., are fed, are the chief producing causes, is attested by the frequency of its occurrence in those animals. But this cause alone does not seem capable of generating the poison. Some excitement, or feverish heat of the blood, must co-operate. It is well known that violent passions have, in the human being, and in various domestic animals, changed the saliva in a moment to an absolute virus, which has communicated disease and death to others. Thus the bite of an enraged man, horse, hog, goose, duck, and hen, has been known to impart a deathful infection. And when a furious exercise of the passions, or an inflammatory state of the blood by violent exercise, co-operates with putrescent food, the peculiar abnormal transformation of matter may take place, which, analogous to a ferment, as I have previously had occasion to intimate, may produce in the saliva a virus capable of propagating itself under favorable circumstances. This view is corroborated by all its historical and phenomenal data. Dogs, cats, and hogs are most exposed to these combined influences, and these animals are most subject to the disease, and in the order named. Wolves and foxes have been noticed as more frequently affected than the herbivora —horses, oxen, cows, sheep, goats, etc., and the manner in which they are exercised and fed, still strengthens our position.

Prognosis.—Hooper pronounces judgment in the following words: "Fatal. The disease has hitherto defied all remedies." Some few cases, however, have recovered under different and even opposite plans of treatment, owing probably to the enduring energies of a good constitution. Water-treatment has apparently succeeded in two or three instances.

Latent Period.—The time which elapses between the bite of the rabid animal and the development of the symptoms, is usually from twenty to forty days; but it may be less than a week, and has been known to extend to three and four years.

Treatment.—The indications are—1. To equalize the distribution of

nervous influence; 2. To deterge the system of its virus. In the early stages the cold treatment may be applied in almost any form, provided it be powerful enough to produce a decided sedative influence upon the whole system, followed by the wet-sheet or dry blanket enveloping, to promote perspiration. Probably the preferable processes are the douche and rubbing-sheet, followed by the wet-sheet pack when the temperature of the body is nearly at or above the normal standard, and by the dry pack when the circulation is low, and there is an inclination to chilliness. These processes may be repeated and alternated as long as the spasmodic condition of the throat exists. Meanwhile, if the patient cannot swallow sips of cold water, he may perhaps be able to chew or swallow bits of ice; and he may be indulged to the extent of his inclination. Very cold compresses or powdered ice should also be applied to the thorax. Very cold water enemas I should decidedly recommend, although I am not aware that they have ever been tried. Hooper tells us that the irritation of the throat has never been removed except by the use of ice taken internally.

Priessnitz has repeatedly cured rabid dogs by douching them perseveringly in cold water. The following case, treated by Dr. Todd, at King's College Hospital, is instructive: The patient was a boy seven years of age, laboring under the worst form of the malady, and refusing, with horror and impatience, every thing offered him, of either a solid or liquid form. After having taken twenty drop doses of prussic acid without any effect on the spasms, he was offered a fragment of rough ice, which he seized and swallowed with avidity. Fresh pieces were constantly put into his mouth, which he seized and crunched between his teeth with remarkable eagerness, swallowing them with perfect ease. In half an hour he had taken a pound and a half of rough ice; and at the same time a bladder containing a mixture of roughly-powdered ice and common salt was applied the whole length of the spine and around the throat. Under this treatment all the symptoms referable to the throat and chest, with the exception of occasional hackings, passed away, and nothing remained but extreme restlessness, violent excitement, and incoherence. In this condition, and in Dr. Todd's absence, the *cold douche* was unfortunately applied by the directions of some other physicians, "but the system," says the physician who prescribed the douche, "did not rally from the shock."

Dr. Guy, author of a work on Medical Jurisprudence, remarks, in relation to the above case: "I am inclined to attribute more benefit to the internal than to the external use of ice in this case; but the joint administration seems to be the most rational treatment yet recommended."

There was certainly a grave mistake in the application of the *cold* douche under the circumstances. On the first attack it would have been proper, but when the violent symptoms are subdued by cold treatment, and the patient is in a state of partial collapse, a very *cold shock* is entirely out of place. But there is another very important consideration. The patient had taken enormous quantities of a powerful narcotic, and, although he did not manifest any symptoms of narcosis while the convulsive paroxysms continued, yet the deadly drug was in him, and must have so paralyzed the nervous system that it could not possibly react or rally against such a shock, which, in an earlier stage, or without the prussic acid, might have been harmless and salutary. Patients will, in no diseases, and under no circumstances, bear *cold shocks* as well while under the influence of narcotics; a fact I have repeatedly known to be verified in actual practice. The history before us shows also the danger of occupying the system, and prostrating its energies by a drug-poison, while we are making impressions on the system by another and very different set of agencies. They do not work well together.

The cold water-treatment was in repute for hydrophobia even in the days of Celsus; and Dr. Good, who, after an elaborate examination of all the methods of treatment known to, or rather practiced by modern physicians, confesses the utter inutility of all of them, adverts to the case of a patient who was cured by water, as though it was a wonderful escape from death by drowning. "Thus," says Dr. Good, "M. Morin relates the case of a young woman, twenty years of age, who, laboring under symptoms of hydrophobia, was plunged into a tub of water with a bushel of salt dissolved in it, and was *harassed* with repeated dippings until she became insensible, and was at the *point of death*, when she was still left in the tub, sitting against its sides. In this state, we are told, she was at length *fortunate enough to recover her senses*, when, much to her own astonishment, as well as to that of the bystanders, she found herself capable of looking at the water, and even of drinking it without choking."

The preventive treatment after the bite, as in all cases of poisoned wounds, is by excision of the part, if it can be done instantaneously; the ligature; cauterization; suction; and perhaps refrigeration. Probably the immediate application of a ligature above the bitten part, and the employment of a powerful cupping-glass over the wound, would arrest the process of absorption for an hour or two, after which excision or cauterization may be resorted to, or both. In all cases, it would be a prudential measure, after the wound has been attended to, to undergo a thorough course of wet-sheet packings, with the view of cleansing

the body as much as possible from all morbid secretions or putrescent accumulations upon which the virus could, as it were, feed and propagate itself, should any portion of it happen to pass into the circulation.

Acrotismus.—The affection called *acrotism*, *pulselessness*, and by some *asphyxia*, though improperly, is a failure or cessation of pulsation for a longer or shorter period, sometimes affecting only particular parts of the system, and sometimes extending over the whole body, often accompanied with paleness, chilliness, pain in the epigastrium, and a sense of spasmodic constriction in the respiratory muscles.

It is often precursive of palsy and apoplexy, sometimes symptomatic of organic derangements; but is sometimes produced by functional derangement of the stomach, liver, or spleen, or some obstruction to the equable radiation of the nervous energy. Some persons have possessed the ability to produce, by voluntary effort, a universal deficiency of pulsation, and of simulating natural death.

Treatment.—The paroxysm may be relieved by thorough friction with cold wet cloths, followed by dry flannel or the dry hand; the cure, so far as practicable, depends on a strict compliance with all the laws of hygiene.

Tetanus.—Several forms in which this disease presents itself, have been designated as varieties by many authors; as *emprosthotonos*, when the body is bent rigidly forward; *pleurosthotonos*, when it is rigidly bent laterally; *episthotonos*, when rigidly bent backward; *erectus*, when rigidly erect, etc.

Symptoms.—The character of the disease is a permanent and rigid contraction of many or of all the voluntary muscles, with incurvation of the body, and difficulty of breathing. Generally the extremities are firmly extended, the abdominal muscles strongly retracted, the eyes fixed, the forehead drawn up into furrows, and the whole countenance is shockingly distorted; the violent contractions are attended with excruciating pain; the pulse is accelerated; the respiration is very laborious, or almost suspended; and the skin is covered with a profuse perspiration. The symptoms frequently remit partially, but are renewed with aggravated torture by the slightest cause, as the least motion of the patient or slightest touch of an attendant. Sometimes the tongue is darted spasmodically out of the mouth, and the teeth, spasmodically snapping upon it, lacerate it severely, unless prevented by some intervening substance. In fatal cases, death is preceded by frothy or bloody mucus at the mouth, small and imperceptible pulse, and delirium.

Special Causes.—Sudden exposure to damp and cold when the body is overheated; wounds, punctures, lacerations, or other local irritations of nerves; the bad air of crowded hospitals; extreme terror, or violent passion; sympathy; long exposure to a very hot sun; various narcotics, as strychnine, or nux vomica; intense galvanic excitement. Hooper names, among the predisposing causes, "the male sex, robust and vigorous constitutions, warm climates, the period of infancy!" It is a singular reflection on nature, or on nature's God, that one cannot be a male, nor have a good constitution, nor live in a warm climate, nor exist during infancy, without being, from either of these circumstances, predisposed to tetanus.

Duration.—In fatal cases the ordinary duration is from four to eight days. Favorable cases linger from one to eight or ten weeks.

Prognosis.—When arising from wounds, the disease has in most cases proved fatal, and it is exceedingly dangerous when existing from any cause.

Treatment.—Water-Cure has not yet been fairly tested in this formidable affection, but the principle upon which the treatment should be regulated, seems very clear. The single indication is to abate the irritation; and to do this the leading measures must be calculated to produce and maintain a relaxant or sedative effect. Horses, and even wounded soldiers, have been cured by an accidental exposure to a long and drenching rain; from which fact we may derive a profitable hint. As the patient is excessively susceptible to impressions of all kinds, it would not answer to weaken him with very warm water, nor shock him with very cold. The wet-sheet envelop—and two or three thicknesses, are better than one, especially in the early stage, if the patient has taken little or no narcotic or depleting remedies—offers the best resource. As soon as the patient is comfortably warm, a part of the bedding should be removed or the bed-clothes loosed, so as to keep up a comfortable glow and maintain a moist state of skin for a long time, even hours together. When the patient becomes too warm, or the wrapping-sheet too dry, it should be wet with cool or tepid water, 65° to 75°, without being removed, so that the patient may continue at perfect rest. There can be no danger in continuing this treatment for days, provided the temperature of the patient is carefully kept near the natural standard. When caused by a wound, the injured part should be covered with several folds of cold wet cloths—as cold as can be borne, without increasing the pain, which should be frequently changed. If able to swallow, the patient should drink rather freely, and as much cold water should be occasionally thrown into the bowels by a pump-syringe as they can conveniently receive

Locked-Jaw—Trismus.—This disease differs from the former in the spastic rigidity of the muscles being chiefly confined to the lower jaw; from which circumstance many authors regard it as a mere form or variety of tetanus. It has also been designated as *traumatic*, when arising from wounds, surgical operations, or other local injuries; and *catarrhal*, when produced by colds. Sometimes it attacks infants soon after birth, constituting the *trismus nascentium* of Dr. Good.

Symptoms.—Sometimes the attack is sudden, but usually the symptoms come on gradually; there is more or less of an uneasy sensation at the root of the tongue, and some degree of difficulty of swallowing. The spasms sometimes extend to the muscles of the chest or back; the breathing is nasal; articulation is interrupted and slow; the muscles of the nose, lips, mouth, and of the whole face are fixed and distorted, and the jaw bone is often so firmly set as to break before the muscles will yield to mechanical force.

Special Causes.—Mechanical injuries, especially the wounding of nerves in bleeding and surgical operations; gun-shot wounds, punctured wounds by nails, splinters, pieces of glass; extreme vicissitudes of temperature, etc. Obstructed bowels is a frequent cause of the infantile variety.

Treatment.—The general plan of medication is similar to that of the former variety. Derivative baths may be here employed, in addition, with advantage, of which the tepid shallow-bath, accompanied with active hand-rubbing, is the best. The bowels should be freely moved by warm water injections.

Cramp.—This affection is often symptomatic, as in various species of colic, cholera, and other diseases. Pregnant women, whose habits are too sedentary, or whose diet is too concentrated, are often troubled with fugitive cramps about the hips or in the muscles of the lower extremities.

Symptoms.—The disease consists of a sudden contraction and convolution of one or more muscles, attended with extreme but temporary pain. The stomach, neck, calves of the legs, and toes, are the parts most frequently attacked. When the hollow viscera or membranous muscles are affected, the pain is agonizing, a violent perspiration usually breaks out, and the part feels as though it were puckered and drawn to a point. When the stomach is attacked, the breathing is short and distressing.

Special Causes.—Sudden exposure to cold or damp when the body is relaxed; flatulence of the stomach or bowels; long-continued pressure; overstretching the muscles Acrid bile is a frequent cause of

cramp in the stomach, and acrid drugs are a common cause of acrid bile; hence we meet with the most obstinate cases among obstinate drug-takers.

Treatment.—The paroxysm can be relieved in a variety of ways. The warm douche, followed by the cold dash; hot fomentations; the warm hip-bath and foot-bath are applicable to cramp in the stomach; when seated in the external muscles or extremities, the hot or cold douche will each relieve it; it can also be speedily overcome by forcibly pressing the affected muscle against a hard, resisting body, as, for example, the ball of the toe, or the heel against the floor, foot-board, or upon the other foot. The *cramping diathesis* may be entirely eradicated by daily bathing, plain, unconcentrated food, and regular and active exercise.

Muscular Distortion of the Spine—Spinal Incurvation.—"Spinal disease," "spinal weakness," "spinal irritation," etc., are among the rapidly-increasing diseases which tell of our enervating habits and consequent physiological degeneracy Spinal distortions may result from organic affections—caries or injuries—of the vertebral column, or from osseous malformation, as in rickets and scrofula; but the great majority owe their existence to simple muscular debility.

There is no part of the great field of "medical science" in which a more blundering pathology, a more unfortunate diagnosis, and a more empirical practice prevail than that relating to spinal complaints. All through the country weakly females abound, whose backs have been blistered, burned, scarred, cauterized, leeched, cupped, scarified, pustulated, and otherwise tortured, with the view of *counter-irritating* a spinal disease, when in fact they have had no spinal disease at all! Any form of indigestion, any morbid condition of the liver, kidneys, and any form of mismenstruation, may produce a sympathetic irritation of some portion of the spinal column; and in many of these diseases of the abdominal and pelvic viscera, a tenderness will be found by pressing firmly on that part of the spine from which the nerves are sent off to the organ or part really diseased. This symptomatic tenderness the doctor mistakes for an idiopathic disease, and plies his destructives accordingly. Again, when the whole body is debilitated by fine food, hot drinks, close rooms, sedentary habits, etc., the whole muscular system is necessarily relaxed; it has not sufficient firmness and elasticity to sustain the trunk of the body erect, and perform its varied motions with ease and energy; hence, like the masts of a ship, when the ropes are weakened or destroyed, the vertebral column bends, leans, or tips backward, forward, or to one side—usually the latter; and again the med-

ical man, again misapprehending the state of affairs, instead of attending to the health in general, and strengthening the weak muscles in particular, administers his internal drugs and drastics, and puts on his external liniments and plasters, or endeavors to give support to the falling frame by binding it up with a set of awkward and complicated machinery. Thousands of females have had real diseases inflicted upon them by the physician's attempts to cure the imaginary one.

The "small of the back" is the center of the whole muscular system; it is the strong or weak point with every person, and no less than three hundred distinct muscles are concerned in the complicated movements of the vertebral column; hence it is no' lifficult to understand how a relaxed or weakly condition of the general system should be especially manifested in a muscular distortion of the spine.

Special Causes.—Under this head I am most happy to quote the following sensible observations from a standard allopathic book, more especially as I have so frequent occasion to dissent from the sense expressed in the works of that school.

"In rustic life we have health and vigor, and a pretty free use of the limbs and the muscles, because all are left to the impulse of the moment to be exercised without restraint. The country girl rests when she is tired, and in whatever position she chooses or finds easiest, and walks, hops, or runs, as her fancy may direct, when she has recovered herself; she bends her body and erects it as she lists, and the flexor and extensor muscles are called into equal and harmonious play. But instead of this, let the child of the opulent be compelled to sit bolt upright in a high, narrow chair with a straight back, that hardly allows of any flexion to the sitting muscles, or of any recurvation to the spine; and let the whole of her exercise be, instead of irregular play and frolic gayety, be limited to the staid and measured march of Melancholy in the Penseroso of Milton:

"'With even step and musing gait;'

to be regularly performed for an hour or two every day, and to constitute the whole of her corporeal relaxation from month to month, girded moreover, all the while, with the paraphernalia of braces, bodices, stays, and a spiked collar, and there can be no doubt that the young heiress will exhibit a shape as fine and a demeanor as elegant as *fashion* can communicate, but at the heavy expense of a languor and relaxation of fiber that no stays or props can compensate, and no improvement in figure can atone for."

Diagnosis.—In organic or structural derangements, the distortion is from within outward, forming a sharp projection of the bones, called

angular curvature, in contradistinction to the disease before us, which is usually termed the *lateral curvature*; and this may be *right* or *left*, as the muscles on the right or left side of the body are more debilitated from peculiar personal habits, ordinary bodily positions, etc. The muscles of the back are more or less emaciated; the soreness or tenderness upon pressure is a very variable symptom; it may be constant or occasional, severe or slight, or entirely absent. Paralysis of the lower extremities is a common symptom of the organic or true spinal disease, especially when the displaced vertebræ press severely on the spinal cord, and when any portion of the cord or medulla oblongata is affected with a softening, *ramollissement*—or other abnormal transformation. Some authors have imputed the lateral or muscular curvature to an *over-action* of some of the muscles of one side; but the exact contrary—want of action—is invariably the fact. Some authors regard the muscular distortion as the predisposing cause of the bony distortion; while others regard the disease of the bones and a relaxation of their ligaments as the producing cause of the muscular depressions. Neither hypothesis is correct; for both affections, as already intimated, commence, progress, and terminate independently of each other: one being strictly organic, and primarily affecting the bones; the other purely functional, and primarily seated in the muscles. Sometimes the miscurvation is double, forming a sigmoid flexure; and the contortion is said to be more frequently on the right side than on the left, probably owing to the more frequent extension of the right hand, the body being thrown toward the left to preserve the central point of gravitation.

Treatment.—First of all in importance is the general regimen. All superfluous clothing must be thrown off; silks and flannels next the skin must be eschewed; all artificial support must be withdrawn, and every thing about the body or dress which interrupts in the least free and varied motion is to be removed. Exercise in the open air should be frequently taken, and such gymnastics as call the muscles more especially debilitated into action, should be indulged with moderation, and regularly persisted in. The bed should be easy but not heating. A good hair mattrass answers very well, and a bed well filled with new oat straw is still better; the patient, during sleep, should recline as nearly on the horizontal posture as is consistent with quiet rest, but not put on an uncomfortable stretch, as some authors have advised. The dietetic plan should consist, to a large extent, of plain, unmixed, solid and dry articles and preparations, as brown bread, with baked apples; wheaten grits and sugar, with uncooked apples; wheat meal or Indian cakes, with milk; roasted potatoes and milk, with dry crusts of good

sweet bread; Graham crackers, with ordinary vegetables and fruits, etc. Cold water should be drank in the forepart of the day, especially soon after rising, as freely as the stomach will bear without decided discomfort; and if the bowels are in any degree torpid, a daily injection should be employed.

The bathing part of the treatment should be as strictly tonic as possible. The dripping-sheet, followed by active and prolonged rubbing with the dry hand; or the tepid shallow-bath, followed by the pail douche, and this, succeeded by hand friction, should be employed daily when practicable, and the towel-wash substituted when both are impracticable. The douche to the whole surface of the back may be employed once or twice daily. The stream should be of moderate force, and applied from two to five minutes. The hip-bath will also be highly serviceable, by constringing the relaxed muscles at the very point of their greatest relaxation. The air-bath is also worth recommending in this place, and its advantage would be greatly enhanced by manipulating or shampooing the whole back, and especially in the immediate vicinity of the morbid curvature.

I may add, in conclusion, that Dr. Jarrold, who once wrote an elaborate treatise on this complaint, limited his medication almost exclusively to burned sponge and the carbonate of soda, from which treatment he is said to have experienced remarkable success; but it is worthy of note that his *hygienic auxiliaries* were, a *recumbent posture*, *shampooing*, *friction*, *pure air*, occasional exercise, and careful attention to *diet*. I am of opinion his hygiene effected the cure, while the drugs were useless or nearly insignificant.

Muscular Stiff Joint.—This affection, which consists of a permanent and rigid contraction of one or more articular muscles or their tendons, may arise from spasmodic contraction or from simple atony: the former kind often results from rheumatism, and the latter from long confinement or neglect of use; colds, strains, and inflammations occasionally produce it. The douche, compresses, active and prolonged friction with soft flannel or silk, or, better still, the bare warm hand, are the "*methodus medendi*."

Wry Neck.—A permanent contraction of the flexor muscles of one side of the neck, or a loss of the balance of action between the flexors and extensors, by which the head is drawn obliquely to the right or left, may be occasioned by a natural disparity in the length of the opposite muscles, and only curable, if at all, by a surgical operation; or by a spasmodic fixation of one or more muscles on the contracted side;

or from debility of the muscles on the opposite or yielding side; or from the two last conditions combined. The first variety is generally congenital, but sometimes results from burns and other injuries; colds and strains are the usual causes of the last three varieties, the curative method for which is the same as for the preceding disease.

Hiccough—Hiccup—Singultus.—The disease before us, and all others arranged under the head of *chronic spasm*, are frequently symptomatic affections. In rare instances, however, they seem to occur idiopathically; that is to say, without any other apparent and well-defined primary malady to which they can be imputed.

Symptoms.—Hiccough is defined, a convulsive catch of the respiratory muscles, with sonorous inspiration, iterated at short intervals. The spasmodic action, as in the case of vomiting, is principally made by the diaphragm and external abdominal muscles.

Special Causes.—Bile in the stomach, acidity, flatulence, indigestible food, an overloaded stomach, external pressure, narcotics, intoxicating drinks.

Treatment.—A draught of cold water, the foot-bath, cold compresses to the stomach. When occasioned by acrid bile, over-fullness of the stomach, or alcoholic liquors, warm water-drinking, the cold abdominal bandage, and the cold injection.

When the spasmodic action appears to be merely irritative, it can be checked at once by holding the breath as long as possible, and fixing the mind intently on some object; violent sneezing, sudden fright, or almost any sudden and strong emotion of mind, will generally arrest it. Baron Dupuytren once cured an obstinate case by applying a hot iron to the region of the diaphragm; but whether the actual cautery or the actual fright actually cured the patient, medical gentlemen may differ; my opinion is in favor of the fright.

Sneezing—Clonus Sternutatio.—Sneezing is a convulsive motion of the respiratory muscles, by which air is driven violently and suddenly through the nostrils, producing a sonorous expiration. In the natural order of things the act is intended to eject from the mucous membrane of the nostrils any irritant or offensive material which effects a lodgment there. Snuff-takers frequently so obstruct and paralyze the nervous sensibility, that it is impossible to excite sneezing by all the pulvurulent narcotic the nose is able to receive; while the undepraved instinct will raise a violent commotion against the smallest particle of obnoxious dust or mephitic vapor.

Special Causes.—Pungent dust, vapors, gases, or other local irri-

taints; indurated mucous and acrimonious secretions, as in catarrh and measles; morbid sensibility of the Schneiderian membrane from acrid bile, and morbid secretions of the alimentary canal.

Treatment.—Sniffing cool or cold water frequently, taking care to draw the fluid into the nostril by means of a moderate but prolonged inspiration, rather than by a forcible, jerking motion; in severe cases, derivative baths—the hip and foot—are useful; and in some cases of dyspeptic sneezing, the whole face requires "packing." I once had an inveterate dyspeptic under treatment, who was afflicted with an eruptive, erythmatic, or "cankerous" condition of the mouth, throat, stomach, and bowels; and this occasioned such an excessively irritable state of the mucous membrane of the nose that the most trivial exciting causes would excite violent and painful attacks of sneezing; these would continue, unless attended to, for hours, and until the whole face was greatly swollen, the eyes injected and tearful, and the sense of tickling and irritation incessantly annoying and intolerably distressing. The sneezing fit was several times stopped by placing several folds of wet cloths over the whole face, leaving a small aperture for breathing purposes, and covering these with dry flannel, so as to produce what has been called the "poultice" effect of the wet compress.

Palpitation.—A subsultory vibrative motion may be limited to the heart alone, or the trunks of some of the larger arteries alone, or affect their ramifications in the viscera, constituting palpitation of the heart, of the arteries, and complicated or visceral palpitation.

Symptoms.—Palpitation of the heart is a vibratory and irregular action, sometimes sharp and strong, and then called *throbbing of the heart*, and sometimes soft and feeble, when it is termed *fluttering of the heart*. In some instances the force of the heart's contraction has been so great as to shake the bed, be heard across the room, rupture the ventricles, and even fracture the ribs. In very nervous or irritable persons the palpitation often shoots from one artery to another, and sometimes a preternatural pulsation pervades every part of the body, the morbid sensibility being so acute that the patient not only feels the universal throbbing, but actually hears it. The temporal and carotid arteries are particularly subject to a migratory throbbing, which may be synchronous, or alternating with the beating of the heart. In dyspeptics, the descending aorta is often the seat of a most disagreeable throbbing, not unfrequently mistaken for aneurism.

Special Causes.—Palpitation is always symptomatic of some organic or functional difficulty, commonly the latter. All visceral obstructions, and every form of indigestion, are liable to be attended with this symp-

tom. The use of tobacco, strong coffee, green tea, or ardent spirits very frequently produces the worst and most obstinate attacks. Strong mental emotions, if frequently repeated, or continuous mental excitements of any kind, tend to create a habitual, disorderly action of the heart and arteries. Probably constipation of the bowels is the cause of the most violent attacks on record. The most common structural derangements of which palpitation is symptomatic, are enlargement or induration of the heart; aneurismal dilatation of its cavities; ossification of its valves, or its connection with the aorta; morbid accumulation of fat around the pericardium; dropsical collections within the pericardium; adhesions of the pericardium.

Diagnosis.—It is often extremely difficult to distinguish between functional and structural causes of palpitation. The following will serve as a general though not a universal rule: functional palpitations are *intermittent*, while those produced by organic affections are *continuous*; and to this I may add, that in all abnormal pulsations from functional derangement or nervous irritability, the character of the pulse is exceeding variable; while in organic affections its abnormal character whatever that character may be, is nearly uniform. It may afford some consolation for invalids with this affliction to know that not more than one in ten of those who are suspected, by themselves or by their physicians, of an organic cause, ever find more than a functional derangement.

Treatment.—As the disease is merely secondary, all we have to do is to trace it to the primary malady, and treat that according to its character.

Nictitation.—A rapid and vibratory motion, or *twinkling* of the eyelids is named as a distinct disease by some authors. When the eye has been frequently exposed to dust, or pungent gases, vapors, etc., a morbid sensibility sometimes remains after the cause of irritation has been removed, producing an irregular, convulsive, and unsightly winking. It has been overcome by a powerful exertion of the will, and by employing only one eye at a time. Frequent cold bathing, followed by gentle manipulation, seems well adapted to restore the natural tone.

Subsultus.—Sudden and irregular twitches or snatchings of the tendinous extremities, are generally indicative of extreme debility, and are hence common in low fevers, and the latter stages of many fatal disorders. But sometimes a feeble convulsive action is local and habitual. Nervous and irritable persons, of otherwise fair health, sometimes are troubled with a jerking, spasmodic action of the muscles of

the shoulders, hands, feet, etc. Such cases almost always depend on some obstruction of the skin, or bowels, or both, and are curable by a daily bath, coarse opening food, and cool injections.

Stretching—Pandiculation.—It requires some stretch of imagination to regard what Dr. Good defines "transient elongation of the extensor muscles, usually with deep inspiration and a sense of lassitude," as a distinct disease. *Yawning*, *gaping*, and *stretching* are instinctive efforts to recover the balance between the flexor and extensor muscles; and are sometimes excited by misposition, and at others by certain morbid conditions, as nausea, the shivering stage of fever and ague. Most frequently, however, that kind of stretching which authors have dignified with the title of a malady, under the name of pandiculation, is symptomatic of indolence; hence it is rather peculiar to loungers, who "cannot rise from the sofa without stretching their limbs, nor open their mouths to answer a plain question without gaping in one's face." The remedy is *occupation*.

CHAPTER XI.

DISEASES OF GENERAL TORPITUDE

The diseases constituting the present chapter, are distinguished by general muscular immobility, with mental or bodily stupor. They form a striking contrast with those of the preceding chapter, and embrace the following species:

Asphyxia—Suspended Animation.
Ecstasy—Spurious Catalepsy.
Catalepsy—Trance.
Lethargy—Deep Sleep.
Apoplexy.
Palsy { Hemiphlegia, Paraplegia, Particular.

Asphyxia—Suspended Animation.—Apparent Death.—The term *asphyxia*, or asphyxy, is often used in the limited sense of *acrotism* or pulselessness, and is generally restricted to that suspension of all the powers of sensation and voluntary motion which is immediately owing to non-arterialization of the blood from interrupted respiration.

But in a more comprehensive sense it has been, and in the present sense is employed to denote all cases in which a total or partial suspension of the mental and corporeal functions characterizes the access of the disease.

Symptoms.—These vary with the producing cause. In asphyxia from *suffocation*, as in hanging or drowning, the countenance is turgid, and suffused with livid blood; the eyeballs are protruded,

> "staring full ghastly, like a strangled man;
> His hair upreared, his nostrils stretched with struggling."

When the asphyxia is produced by inhaling carbonic acid—*choke-damp*—or other irrespirable gas or mephitic exhalation, the countenance is pallid, the whole surface is also pale, and death often takes place instantly, save when the deleterious aura is largely diluted with common air, in which case the symptoms more or less resemble apoplexy. Of the gases positively pernicious to breathe, are the carbonic acid, often found in close rooms where charcoal has been burned, in the bottom of wells, or large beer-casks, and in natural caverns; the carburetted hydrogen, and various compound gaseous products evolved from decomposing animal and vegetable substances, and from the putrefying corpses of cemetaries; and of the negatively injurious gases—those which do not support respiration—are hydrogen and nitrogen; some of their compounds, however, with sulphur, carbon, and phosphorus, are absolutely destructive. The fumes of mercury, lead, and various other metallic substances, when highly concentrated, operate with as sudden fatality as the fumes of charcoal.

In electrical asphyxia, which is produced by a stroke of electricity or lightning, the limbs are generally flexible, the countenance is pale, and the blood is incoagulable; usually the limbs do not stiffen after death, and the body becomes rapidly putrescent. Sometimes no external injury whatever is observable; but in other cases the skin is vesicated, the hair is scorched, and the body more or less lacerated and torn.

When the disease results from intense cold—frost-bitten asphyxia—the limbs are rigid, the countenance pale and shrivelled; it comes on more gradually than the other forms; there is a tendency to sleep, which increases as the period of exposure is extended; and when this is joined with fatigue, the torpor and drowsiness often become irresistible.

Various narcotic poisons, as cicuta, tobacco, and Prussic acid, when taken in large quantities, and also the *anæsthetic* agents, as ether and chloroform, in extreme doses, will produce asphyxia, attended with total insensibility and universal muscular relaxation.

Treatment.—This must vary with the cause. The variety produced by *hanging* is hardly a medicable case; yet if the strangulation has not continued too long, nor the neck-joint been fractured or dislocated, there is a chance of restoring respiration by some of the means about to be mentioned. Death from *submersion* does not result, as is generally supposed, by water entering and filling the lungs, but from suffocation produced by a spasmodic constriction of the glottis—an instinctive effort to keep the surrounding water out of the lungs. How long life can be maintained under water is uncertain; and the time probably depends partly on the natural capacity of the lungs, and partly on the extent to which they happen to be inflated when respiration ceases. Individuals can generally be resuscitated if not submerged more than five minutes; very often after having been ten or fifteen minutes under water; and in some instances persons have recovered after an hour's submersion. Recoveries have been reported after a much longer submersion—several hours, and even several days; but such reports seem to challenge human credulity rather severely. Be this as it may, our duty is plain; it is to endeavor to resuscitate the patient so long as there are the least indications of a spark of remaining vitality. Instances are well authenticated of patients having recovered after a perseverance in the restorative means for eight or ten hours.

The remedial plan comprises two distinct indications: 1. To restore warmth and circulation to the surface. 2. To inflate the lungs. In the first place, the patient should be wiped dry, wrapped in clean warm blankets, and conveyed in a recumbent posture on the back, with the head and breast raised, to a warm, dry, well-ventilated room, and surrounded by no persons except the necessary attendants. Dry warm flannels, and bottles or bladders of warm water, or bags of warm grain or sand, are to be applied to the stomach, feet, and sides, and the surface should be thoroughly and perseveringly rubbed by the warm dry hands of the attendants. The mouth and nose should be promptly cleansed of the obstructing mucus, and the foul air may be sucked out by means of a tube, which may also be used for inflating the lungs, as in figure 187.

The inflation of the lungs is the most important of all the curative processes. This may be done by repeatedly forcing into the patient's mouth—the nostrils, meanwhile, being held close—a full expiration of air from the lips of an attendant, or by means of the tube represented in figure 187, alternating the expiration with moderate but firm pressure on the external abdominal muscles, so as to simulate all the motions of natural respiration. A common bellows, when well managed, is preferable, because it will convey pure, unrespired air to

the lungs; and if the bellows can be attached to a tube, and this introduced into the larynx, the effect will be better still.

Fig. 187.

INFLATING THE LUNGS.

It may excite the surprise of the non-professional reader to be told that *bleeding*, even in the asphyxiated state, is an approved allopathic *remedy* in this disease. Many physicians of "high authority" recommend opening the jugular; while other high authorities oppose the practice, not on the ground of its impropriety, but because the blood will seldom flow if the jugular is opened. Samuel Cooper dissents in part. He says: "Bleeding ought never to be employed *in this stage* of the process, though it may become necessary when the circulation has returned, and reaction has taken place." This means, liberally interpreted, that after the patient is out of danger it will not kill him to lose a little blood, although it might have been the death of him while the danger existed!

When the disease is caused by deleterious gases, narcotic or metallic fumes, etc., or the anæsthetic agents, the treatment chiefly consists in exposing the patient freely to the open air, dashing cold water in the face, pouring cold water over the head, and active friction with pulmonary inflation, as in the preceding variety. Injections of cold water are also serviceable; sprinkling or dashing cold water over the surface, following the application with active friction with the bare hand, has been tried with evident advantage.

In the case of apparent death from electricity, all the appliances just named may be called in requisition; but as far as experience can guide us, dashing cold water freely over the breast, face, and even the whole body, and the prolonged pouring-bath to the head, are the most important processes

Here again, many of the shining lights of allopathy insist that the patient ought to lose a little of his blood, as well as all of his sensibility. M. Portal recommends opening the external jugular; Dr. Doane thinks the abstraction of a few ounces has done good; and Dr. A. H. Stevens, of this city, has recorded a case of injury by lightning *successfully treated by copious venesection*; that is to say, the amount of blood drawn within *ten days* was about one hundred and twenty ounces! If a patient can survive a stroke of lightning long enough to go through a ten days course of venesection, it is conclusive evidence that he can live better without the remedy than with it. Dr. Stevens has afforded another demonstration of the old proverb, that many patients recover in *spite* of the disease and the doctor.

In asphyxia from cold, the application of warmth must be cautiously managed. When a limb or part is frozen, the coldest water should be employed in the first instance, and the temperature gradually raised; the patient, meanwhile, should be kept in a moderately cool atmosphere until the circulation is restored. Rubbing the frost-bitten part with snow until sensibility returns, and then with warm water, and afterward the dry hand, is an excellent plan. In cases of extreme torpor from cold when no part is absolutely frozen, friction with wool, flannel, or the dry hand is appropriate.

Ecstasy.—This affection is peculiar to those states of bodily derangement of which mental aberrations or extravagances are symptomatic; hence it attacks chiefly melancholic, hypochondriac, visionary, and abstracted persons.

Symptoms.—The paroxysm consists of a sudden and total suspension of sensibility and voluntary motion, the pulsation and breathing continuing, with rigid muscles, and an erect and inflexible position of body. In most cases there is also a complete suspension of mental power. The duration of the fit varies from two or three hours to as many days, at the end of which the patient rouses as from sleep.

Special Causes.—A morbid state of the liver; powerful mental excitement; long-continued meditation on a particular subject; prolonged suspense of mind; venereal excesses; self-pollution or onanism.

Treatment.—Out-door exercise by walking, riding, sailing; varied scenery; lively company; cheerful conversation; amusements of the laughable kind; regular employment or occupation, with a daily bath and plain food.

Catalepsy.—The only essential distinction authors make between

ecstasy and trance is that of the flexibility or inflexibility of the muscles; in the disease under consideration the muscles are lax and yielding, and the body yields to and retains any given position. The eyes remain open, and are fixed intently upon some object, but usually no perception accompanies the apparent vision. The fit generally comes on without premonition, and in most cases closes with singing. Its duration is from a few minutes to several days. This affection is sometimes counterfeited, and the real disease has been sometimes mistaken for actual death. The causes and treatment are the same as those of the preceding disease.

Lethargy.—*Deep sleep* does not perfectly express the leading character of this disease, as it is sometimes wanting. Lethargy is distinguished from asphyxia, ecstasy, and catalepsy, by the apparent general ease and quietude of the body; and from apoplexy, by the eyelids being closed and the limbs gently reclining, as in natural sleep.

Symptoms.—Sometimes the sleep is profound, and without intervals of sensation, waking, or consciousness; sometimes the sleep is remissive, and the patient occasionally awakens and recovers sensation and speech, constituting the *coma somnolentum* of authors; and in a third variety—the *typhomania* and *coma vigil* of pathologists—there is a perfect lethargy or insensibility of the body; while the mind is only imperfectly lethargic, manifesting confused and wandering ideas, and, during sleep, possessing a belief of wakefulness. This form is frequently a symptom in various fevers.

Special Causes.—Violent mental commotion, fright, furious anger, excessive mental labor, night-work, repelled eruptions or exanthems, congestion or effusion in the brain.

Treatment.—Essentially the same as in the preceding two diseases, save that the exercise must be of the recreative rather than laborious kind. The pouring head-bath is a promising measure during the paroxysm.

Apoplexy.—This disease is one of the results of a constipated, obstructed, plethoric, and overburdened body. Excessive alimentation, with defective depuration, and some internal visceral obstructions or compressions, are the obvious conditions on which the apoplectic fit depends; and hence we rarely witness the disease except among the full-fed, the corpulent or obese, and the gross or high livers; and even then we almost invariably find inattention to the functions of the excreting organs or outlets of the body among the predisposing circumstances.

This view is simple enough, and not difficult to understand. But in medical books we find a world of confusion on the whole subject. Every thing relating to its causes, seat, nature, and proper treatment, is there hypothetical, unsettled, contradictory—a mountain mass of scientific absurdity and erudite inconsistency.

Some authors regard it as a disease of the sanguineous system; others as an affection of the nervous system. Some writers contend that the immediate cause is *always* some effusion, extravasation, or other structural derangement in the brain; while others declare that such circumstances are *never* necessary conditions. Some pathologists argue that *compression* of the brain is the universal immediate cause; while others as ably theorise that the brain is *incompressible*. And in relation to treatment, some authors rely on copious bleedings and other depletory processes as the only hopeful treatment; others condemn large bleedings as injurious, but go for small ones; while others condemn all bleeding and all depletion as bad, and advocate the very opposite treatment—brandy and general stimulants; and yet others consider bleeding good in some cases and bad in others, the great point of skill in the physician being to determine when to employ and when to withhold the lancet.

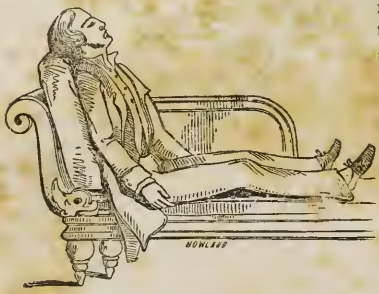
Symptoms.—The distinctions which authors make of this disease, into *sanguineous* and *serous*, *entonic* and *atonic*, *simple* and *congestive*, etc., are unimportant, as they relate only to the greater or less debility of the patient at the time of attack. Sometimes the disease comes on suddenly without the least premonition; sometimes the attack is preceded by a sudden paralysis of one side of the body, and sometimes it is ushered in by acute headache, nausea, faintness, noises in the ears, confused vision, incoherence of ideas, loss of memory, and numbness of the extremities. The fit is characterized by complete insensibility; slow, noisy, and usually stertorous or puffing breathing; impeded deglutition; flushed and livid countenance; prominent and motionless eye, and generally a fixed or contracted state of the pupil; the limbs are rigid, motionless, or convulsed; the bowels are obstinately constipated, or the fæces pass involuntarily; the urine is passed unconsciously, or retained until the bladder is full, then dribbling away. The pulse is variable; it may be full, hard, and quick, or weak and frequent.

Diagnosis.—It may be distinguished from the *stupor of drunkenness*, by the alcoholic odor of the breath in intoxication, and from the *narcosis* produced by various poisons, by the capability of occasionally rousing the patient in the latter affection.

Treatment.—The first thing to be done is to remove the patient to a

cool, spacious, well-ventilated apartment, loosen all the clothing about the chest, remove every thing from around the neck, and place him in an easy and nearly upright posture, as in fig. 188.

Fig. 188.



POSITION IN APOPLEXY.

Follow the preparatory measures with the curative processes, which consist mainly of the pouring head bath; warm water and warm cloths to the feet, and occasionally hot fomentations to the abdomen. If the fit continue, the cold stream may be applied to the head for a quarter to half an hour, several times a day; the cold wet girdle to the abdomen should succeed the hot fomentation, which may be resorted to every two or three hours, for ten or fifteen minutes each time; and friction to the lower extremities with a cold wet cloth, followed by the warm flannel or dry hand rubbing, is a valuable auxiliary. No attempt should be made to give any thing by the mouth, until the breathing is materially relieved, and then only moderate draughts of cold water should be administered.

The *prophylaxis*, or preventive medication, consists in a daily cold bath, plain, simple, abstemious diet, regular hours for eating, laboring, and resting, and a careful avoidance of all violent exertion, strong mental excitements, depressing passions, etc.

PALSY—PARALYSIS—PARESIS.—The same general causes which tend to the production of apoplexy, are among the most efficient predisponents to palsy. The disease before us, however, is more frequently dependent on organic changes; and when merely functional, is more generally connected with nervous exhaustion. The ancients regarded apoplexy and palsy as modifications of one essential disease; "apoplexy being a universal palsy, and palsy a partial apoplexy."

Symptoms.—Paralysis may be attended with a total or partial loss of sensation only in the part affected, or a loss of voluntary motion only, or of both. The precursive symptoms are sometimes the same as those of apoplexy, but more generally the disease comes on gradually, an occasional sense of weakness, and troublesome but transient feelings of numbness being the leading admonitions; and these are often ob-

servable in a single finger, in one eye, the tongue, or one side of the face alone.

In the *hemiplegic* variety the disease is confined to one side of the body, which is affected from the top to the bottom of the mesial line. This form is often a sequel of apoplexy.

In the *paraplegic* variety the lower part of the body is paralyzed on both sides, or any part below the head. When not caused by some local injury, it is almost always preceded by costiveness.

Particular or *local* palsy is confined to particular limbs, or to a particular part of the body. When it affects the face, the expression of countenance is peculiar, the features are drawn to one side, and of course the two sides are not symmetrical, and the deformity is increased when the patient attempts to whistle, speak, laugh, cry, sneeze, or cough.

A variety of local paralysis, to which those who work in quicksilver mines, at water-gilding, etc., are subject, called *mercurial tremor*, comes on with weakness and convulsive twitchings in the arms, gradually extending to the lower extremities, and finally to the whole body; and another variety, called *lead palsy*, or *dropped hand*, which attacks glaziers, plumbers, oil-painters, enamel card-makers, etc., begins by a feeling of weakness in the fingers, and extends to the wrist, but rarely beyond it, shooting pains affect the arm and shoulder; the parts affected waste and emaciate, and the hand hangs loosely and uselessly at the wrist.

Special Causes.—Most of the causes of apoplexy: enlarged or indurated liver or spleen; constipation; venereal excesses; metallic fumes; narcotics; alcohol; pungent stimulants; acrid medicines, as copavia, turpentine; sudden and extreme alternations of temperature; pressure upon the brain, spinal marrow, etc.; fever tumors, injuries, extravasations, effusions; loss of nervous communication from structural degeneration; intense mental emotion; prolonged wakefulness, or excessive night-work.

Treatment.—The prospect of cure must be predicated upon the prospect of the cause or causes being structural or functional, which point, however, is not always easy to determine. But in either case the plan of medication is obvious, and the same. Some few cases are attended with a difficulty of respiration, and the indications of compression of the brain, resembling apoplexy, and require similar management. For bathing purposes, water should be employed as cold as can be borne without permanent discomfort; though, as a general rule, the baths should be of short duration. In paralysis of one side, the ablution or dripping-sheet may be the most convenient general bath; the wet-

sheet pack, followed by the plunge, is still better when there is a good degree of remaining vitality. When the lower part of the body or lower extremities are palsied, the shallow-bath is evidently the best leading water process, and it may be aided by frequent hip and foot-baths. In all cases thorough friction by means of flannels, flesh-brushes, hand-rubbing, shampooing, etc., should follow the application of water. A moderate douche applied generally to the spine, and locally to the part affected is serviceable in most cases. When the superficial heat is too low, or the general torpor too great to admit of the full-sheet pack, the half-sheet may be beneficially employed. Whenever the extremities, or any portions of either of them are paralyzed, the wet compresses, well covered, should be constantly worn and frequently renewed. Careful attention must be paid to the diet; and to the state of the bowels. Cool injections are generally necessary daily; the patient should drink moderately of cold water, and the general regimen should be precisely on the plan adapted to, and recommended for, the cure of dyspepsia.

CHAPTER XII.

VISCERAL TURGESCENCE.

A SWELLING, fullness, or turgescence may exist in any part or organ in temporary obstructions, congestions, or inflammations; but the present chapter is limited to those affections of the internal viscera in which the enlargement is chronic or permanent. It includes the following varieties, which make the species of Dr. Good's genus *parabysma:*

Hepatic—	Enlargement	of the	Liver;
Splenic,	"	"	Spleen;
Pancreatic,	"	"	Pancreas;
Mesenteric,	"	"	Mesentery;
Intestinal,	"	"	Intestines;
Omental,	"	"	Omentum;
Complicated,	"	"	Various Organs.

ENLARGEMENT OF THE LIVER.—The structure and functions of the liver, as described in the physiological part of this work, explain the reasons why the liver is more subject to chronic enlargement than any

other organ in the body. The morbid alterations of structure which constitute its intumescence are various, as simple swelling, tubercular formations; hydatid growths; hardening, or induration; softening, or fatty degeneration; and that result of bad living and putrescent blood which pathologists have called *black ramollissement*, in which the organ is reduced to a dark-colored mass of very little consistence, etc.—conditions which are difficult of diagnosis during life. Another form of structural derangement has been called *gin-liver*, in which the biliary portion of the liver is both hypertrophied and indurated, as well as dropsical, from the effect of the free use of ardent spirits.

Symptoms.—With general derangement of health, and various symptoms of indigestion, particularly pale, yellow countenance, irregular and often whitish injections, a hard tumor may be found in the right hypochondrium, verging toward and often appearing at the pit of the stomach. In dropsical persons the swelling is sometimes enormous. An enlarged or indurated liver is common to persons who have suffered frequent or prolonged attacks of ague and fever, and has then been denominated *ague cake*.

Special Causes.—All the common causes of vitiated blood and impure secretions tend to disease the liver; but an obstructed skin, by which the decomposing and putrescent particles of the body are retained in the system, is the most efficient among them. Among the causes which operate indirectly in producing obstruction and enlargement of the liver, are concentrated food, animal oils, or greasy matters, swine-flesh, shell-fish, stale meats, old cheese, etc.; and among those which operate more directly to produce functional disturbance, followed by organic changes, are alcohol, tobacco, hot drinks, violent passions, etc.

Treatment.—The indications are, 1. To promote as vigorous absorption throughout the entire lymphatic system as possible. 2. To purify and invigorate the general system. For fulfilling the first indication, the "hunger-cure," moderately but perseveringly employed, and a moderate douche, frequently applied over the back, especially on its upper portion and over the shoulder-blades, are the leading measures; and for the second, the wet-sheet pack, or shallow-bath, or both, where the external temperature is considerable, are the best among various useful processes. The abdominal compress should not be neglected; and when there is pain or tenderness about the epigastric region, or in its vicinity, or when the bowels are habitually constipated, the warm stream douche to the whole abdomen, followed by the cold dash, will be advantageous.

I may just observe, *en passant*, that there is some slight discrepancy in the opinions of standard medical authors regarding the treatment of

the malady under consideration. Thus, Dr. Elliotson recommends iodine and mercury as the principal remedies; but Abercrombie says that the mercurial practice uniformly sinks the patient in a very rapid manner.

Enlargement of the Spleen.—Pathologists seem to be generally of the opinion that structural disorders of the spleen occasion but very little mischief to the organic economy. I think differently. It is true that the consequences are much less apparent; but if the opinion I have heretofore advocated respecting the functional office of the spleen is correct, a derangement of its function must be followed by a loss of power, to some extent, throughout the entire range of the organic or nutritive functions; although such result would not be manifested by any special local symptoms, as in the case of a similar morbid condition of the liver.

Baron Dupuytren found that dogs maintained apparent good health after having their spleens extirpated; but medical authors generally confess that "the more the spleen exceeds its natural size in the human subject, and the longer it retains this abnormal condition, the more are the functions of respiration, digestion, etc., disturbed, and the greater is the impairment of the general health." The key to an explanation of all these facts is within reach. The spleen is an appendage to the higher class, or brain-endowed class, of animals; and its especial office is to provide in part for the additional supply of organic nervous influence rendered necessary by the superstructure of the encephalic mass, while it performs a subordinate duty in supplying additional nervous influence to the general nutritive system. Hence the importance of the spleen in the animal kingdom has a direct relation to the size of the brain; which fact accounts for the lesser disturbance its disease or removal should produce in the small-brained than in the large-brained animal.

Symptoms.—It is known by an indurated tumor in the left hypochondrium, verging toward the spine; as with the preceding disease, there are symptoms of general ill health; but while in enlargements of the liver these symptoms assume the forms of jaundice and dyspepsia, they will, in induration of the spleen, appear in the shape usually termed nervous debility. The patient seldom complains of pain in the region of the organ affected; his appetite is good, but he loses flesh and muscular strength; his features have a dark, bilious, or mahogany hue; the skin is dry, the lips are pale, and the patient is not infrequently morose and desponding.

Special Causes.—The disease often appears after obstinate intermit-

tent or remittent fevers; scrofulous constitutions, and constitutions debilitated by intemperance are very liable to it; marshy situations and stagnant waters occasion it; it has followed suppressed menstruation; and medical authors name Peruvian bark, which is so immoderately administered in intermittent fevers, as a cause of enlarged spleen. This affection also called *ague cake*.

Treatment.—The douche should be frequently applied, with as much force as the patient can comfortably bear, to the spine and left hypochondriac region; and in all other respects the plan recommended for enlarged liver is to be pursued.

Enlargement of the Pancreas.—This is a rare disease, or at least, rarely detected in the living subject, but occasionally abscesses, scirrhus indurations, tubercles, calculous depositions, etc., have been found to occupy a part or the whole of its structure.

Symptoms.—These are obscure, except in extreme cases, when a hard, elongated tumor may be detected, extending transversely in the epigastric region, and accompanied with symptoms of dyspepsia and general debility.

Special Causes.—From the analogy existing between the functions of the salivary glands and pancreas, authors have judged the habitual excitement of the excretories of the former might be communicated sympathetically to the latter; and that hence tobacco-users were peculiarly liable to the complaint; in confirmation of which, Dr. Darwin relates a fatal case which occurred in a great consumer of the article—"chewing it all the morning, and smoking it all the afternoon."

Treatment.—As in the preceding varieties.

Enlargement of the Mesentery.—Enlargement of this structure may be in the form of hydatids, of tubercles, scirrhus induration; fleshy, adipose, or fungus excrescences, or calculus deposits; or several of these morbid alterations of structure may be coexistent.

Symptoms.—The affection may be known by an indurated and irregular mass of tumors below the stomach, yielding to the pressure of the hand; the countenance is pale and bloated; the appetite is irregular, often voracious; and general atrophy or emaciation attends.

The causes and treatment are similar to those of enlarged liver.

Enlargement of the Intestines.—In some cases the induration is confined to the coats of the intestines; and in others adhesions unite the intestines to the walls of the abdomen and to each other.

Symptoms.—The intumescence may be round or elongated, hard or

circumscribed; but is movable by pressure made with both hands; the action of the bowels is irregular; there is usually obstinate vomiting, and more or less fever and emaciation.

Treatment.—In addition to the general remedial plan applicable to all varieties of visceral turgescence, the peculiar symptoms of the affection before us demand frequent sips of iced water, cold compresses to the stomach, and the free employment of tepid injections.

Enlargement of the Omentum.—Turgescence of the omental portion of the peritoneum, is usually of a complicated character—indurated, scirrhus, cartilaginous, and tuberculated; in some instances the structure acquires almost a stony hardness.

Symptoms.—The tumor is indurated and diffused, extending frequently over the entire abdomen; it is accompanied with general emaciation and difficulty of breathing.

The treatment does not differ essentially from that appertaining to enlarged liver.

Complicated Visceral Enlargement.—This is merely a conjoint existence of several of the diseases we have already considered. It is denoted by a hard, elevated, and distended abdomen, resembling that of pregnancy; the belly is, however, more or less knotty and unequal; the respiration is but slightly disturbed; but there is usually acute pain, thirst, nausea, and vomiting. A diseased liver is the common starting-point of these structural monstrosities; and our only chance of cure is to employ assiduously, in the infancy of its malady, all the remedial appliances recommended under the head of enlargement of that organ.

CHAPTER XIII.

DROPSICAL DISEASES.

The character of a dropsical affection may be defined: a pale, indolent, and inelastic distention of some part or of the whole body, from accumulation of a watery fluid in the areolar tissue or other natural cavities. There is, however, one exception to this definition, in the case of *internal hydrocephalus*, which, though usually regarded as a dropsical disease, is, in reality, a strumous inflammation of the brain.

The principal forms of disease belonging to the chapter before us may be grouped:

Cellular Dropsy { General—Anasarca, Local—Œdema.
Dropsy of the Head { External Hydrocephalus, Internal Hydrocephalus.
Dropsy of the Spine—Spina Bifida.
Dropsy of the Chest—Hydrothorax.
Dropsy of the Abdomen—Ascites.
Dropsy of the Ovary—Hydrops Ovarii.
Dropsy of the Fallopian Tubes—Hydrops Tubalis.
Dropsy of the Womb—Hydrops Uteri.
Dropsy of the Scrotum—Hydrocele.
Wind Dropsy—Emphysema { Cellular, Abdominal, Uterine.
Inflammatory Dropsy { Puerperal Tumid Leg, Tropical Tumid Leg.

It is amusing to read the lengthened discussions which have been carried on by medical theorists respecting the proximate cause or essential nature of dropsy; one party regarding it as a disease depending on diminished absorption, and the other as ably contending that the fault consists in increased exhalation. The practice predicated on the former theory is stimulation, and on the latter, antiphlogistication. But as neither quinine nor bleeding effected a cure, a third party has lately entered the field of controversy, and cut the Gordian knot, by blending both doctrines in one; and declaring that diminished absorption *and* increased exhalation produce the disease, the therapeutic indication being to balance the action between the absorbents and exhalents. To this party we are indebted for the mercurial treatment of dropsy, which has proved even *worse* than its *bad* predecessors.

Cellular Dropsy.—This affection is called *anasarca* when it extends over the whole body, and *œdema* when limited to the areolar texture of the limbs.

Symptoms.—Cold and diffusive swelling or puffiness of the skin, which pits beneath the pressure of the fingers; the intumescence is greatest in depending situations; and around the feet and ankles the accumulation increases toward evening, and decreases during the night. The skin is paler than natural, and when the distention is great it assumes a shining appearance, which often becomes livid and discolored, and not unfrequently bursts in extreme cases.

Special Causes.—All the causes of general debility predispose to dropsy. Intemperance, repelled eruptions, exhausting discharges, suppressed evacuations, and structural or functional obstructions of the kidneys, skin, and liver, are among the frequent causes. Œdematous swellings of the limbs are often symptomatic in mismenstruation, pregnancy, etc., and frequently a result of mere debility, as in protracted fevers, etc.; constitutions broken down by mercury, are very liable to this disease.

Treatment.—In all dropsical affections of the cellular membrane, the indications are, 1. To promote the absorption of the effused fluid. 2. To prevent its re-accumulation. The first indication is accomplished by promoting the activity of the excretory organs generally; and the second by strengthening the whole system; and either indication must be made the leading one, as obstruction or debility is the leading proximate condition. As a general rule, quite cold water is preferable for bathing purposes, but the duration of baths should be short, and succeeded by active and prolonged, yet gentle friction with silk or soft flannel, or better still, the bare hand. The moderate douche, followed by a thorough rubbing in the dry blanket, and the wet-sheet pack, with warm bottles to the feet, and, if need be, the armpits, are among the best general baths. But as no two cases present the same set of circumstances, the practitioner will always find a wide field for the exercise of judgment. The diet must be mostly of the dry and unconcentrated kind, and water should be drank only to the extent demanded by actual thirst. Tepid injections should be freely employed when there is the least tendency to constipation. The warm douche, or spray-bath, followed by the cold dash or pail douche, is an excellent process when the swelling is tender and painful, and particularly serviceable if applied to the lower part of the abdomen when the kidneys are torpid or obstructed, which will be known by scanty or difficult urination.

A great deal of importance is attached, by most medical writers on dropsy, to the chemical ingredients in the urine, and the changes this secretion undergoes in hydropic patients; and Dr. Johnson even advises patients at a distance, when writing for advice, to send along a bottle of urine for the purpose of chemical analysis. Now people ought to know that, however amusing or interesting such experiments may be, they are of no utility whatever, as regards the cure of the disease; for whether the urine is a little more or a little less *albuminous*, or *ammoniacal*, or *alkaline*, or *acid*, or *saline*, it is all the same as far as the treatment is concerned.

Dropsy of the Head—Hydrops Capitis.—External dropsy of

the head, commonly called *chronic hydrocephalus*, consists of an accumulation of watery fluid in the ventricles or convolutions of the brain, or between the membranes, or between the bones and dura mater; and internal dropsy—*acute hydrocephalus*—is an inflammation of the membranes or substance of the lower part of the brain, which, in its progress, runs into suppuration, and produces effusion into the ventricles.

Symptoms.—In the first variety there is an œdematous intumescence of the head, while the sutures of the skull are usually separated; the whole head appears preternaturally large, and the fontanelles are prominent; in its advanced stages it is attended with languor, drowsiness, costiveness, vomiting, coma, frequently convulsions, and sometimes strabismus. The second variety—the *cephalitis profunda* of Good's nosology—comes on gradually and insidiously; the precursive disturbances are languor, inactivity, loss of appetite, feverishness, etc.; these are followed by darting pains in the head, great sensibility to light, contracted pupils, extreme restlessness, frequent sighing, disturbed sleep, from which the patient often starts with a scream; in a later stage the bowels are irregular, the pulse small and frequent, and delirium and convulsions sometimes occur; as the disease progresses the pupil dilates, the eyes usually present a squinting appearance, and a low moaning takes the place of the shrieks; and near the fatal termination, double vision or loss of sight, with lethargic stupor, or violent convulsions occurs. Hydrocephalus is peculiar to infancy, and sometimes commences in the fœtus.

Special Causes.—Scrofulous, scorbutic, or syphilitic taint; repelled eruptions; injury to the brain during labor; bad dietetic habits of the mother during pregnancy; frequent exposure of the mother during pregnancy, or of the child soon after birth, to the powers of narcotic poisons, particularly tobacco.

Treatment.—We can promise but little in either form of hydrocephalus unless detected and treated in the early stages. The general plan of management is the same as for the preceding disease, save that a good part of the treatment should be derivative—half, hip, and foot-baths, and the wet girdle to the abdomen. The pouring head-bath is advisable in the chronic or internal variety. The external form has in some instances been relieved by evacuating the water with a lancet, couching-needle, or trochar.

Dropsy of the Spine.—This affection is mostly congenital; it consists of a soft fluctuating tumor on the spine, from fluid accumulated within the coats of the spinal cord, protruding externally in consequence of some portion of the vertebral column being defective. It

is generally fatal, although a cure has taken place spontaneously in a few instances, and several cases have been reported as cured by repeatedly puncturing the sac with a fine needle. With the exception of this surgery, if deemed advisable, the proper course is to attend to the general health, and "trust to nature."

Dropsy of the Chest—Hydrops Thoracis.—In this affection the fluid may accumulate in the cavity or cavities of the pleura on one or both sides, or in the mediastinum, or pericardium, or even the cellular texture of the lungs. These distinctions, however, are neither possible to ascertain during life, nor important practically.

Symptoms.—With a constant sense of oppression in the chest, there is difficult breathing on exercising or reclining; the countenance is more or less livid; the urine scanty and high colored; the pulse is irregular; the extremities are œdematous; the patient is often troubled with startings and palpitations during sleep; a distressing feeling of suffocation frequently attends; and the patient can get no rest but in the erect posture. It usually attacks persons in advanced life.

Special Causes.—Hypertrophy of the heart, aneurism, scirrhus of the stomach and liver, and other organic derangements, frequently produce hydrothorax. When idiopathic, *if ever*, it is produced by the common causes of dropsy.

Treatment.—In a majority of cases our prognosis must be unfavorable; the derivative baths, and the principles already adverted to as applicable to the treatment of dropsy in general, are all our grounds of hope in the case before us. Some few cases are reported in medical works as having been caused by *paracentesis thoracis*—an operation which will be described in the surgical department of this work.

Dropsy of the Abdomen.—*Ascites*, or dropsy of the belly, is called *encysted*, when the fluid is contained in a cyst or sac of adventitious formation, instead of accumulating in the cavity of the abdomen itself.

Symptoms.—It is known by an equal, tense, and heavy intumescence of the whole belly, which distinctly fluctuates to the hand, upon a slight stroke being given to the opposite side.

Diagnosis.—In the *encysted* form the size of the abdomen enlarges gradually and steadily, without experiencing any sudden increase, decrease, or change in the swelling; whereas the distention is often temporarily diminished by treatment or accidental causes, when the accumulation is within the cavity of the abdomen; from *ovarian dropsy*, by the intumescence commencing lower down and on one side in the

latter disease; from *tympanites*, by the dullness on percussion, and by the fluctuation; from *retention of urine*, by the dribbling of water in the latter affection; from *pregnancy*, by the fluctuation, and state of the menses and breasts; and from *cysts* or *hydatids* of the liver, by the swelling in the latter case being more circumscribed, and commencing on one side of the upper part of the abdomen.

Special Causes.—Repelled eruptions, or exanthems, very frequently produce this disease. Mercurial ointments, lead washes, and other discutient and repellent lotions and medicaments, have often changed the morbid action from an external skin disease to an internal dropsy. Suppressed catamenia and metastatic gout are also frequent causes; and it is often symptomatic of diseased or disorganized liver, kidneys, and other organs.

Treatment.—The encysted variety cannot be cured without the operation of tapping the abdomen. The general health should always be improved as much as possible before the operation is performed, for which purpose the packing, douche, and foot-baths are necessary. Surgeons are always apprehensive of danger from inflammation attacking the punctured part, but the danger chiefly arises from the inflammatory or feverish state of the body, or the obstructed condition of the excretories at the time of the operation. If the general system is put in good condition, the simple operation of drawing off the water by tapping can seldom be serious, much less dangerous.

When the watery fluid is collected within the peritoneum an operation is sometimes necessary; but frequently it can be cured by the general plan of management applicable to cellular dropsy. The abdominal bandage, well covered and renewed five or six times a day, and a free use of injections, are specially desirable in this form of dropsy.

Ovarian Dropsy.—Dropsy of the ovary is always of the encysted character, and the cysts are generally combined with enlargement of the ovary itself, which becomes converted into a hard, whitish, cartilaginous mass.

Symptoms.—The tumor commences on one or both sides of the iliac region, and gradually spreads over the abdomen; its surface is unequal, and its fluctuation is obscure and feeble, and in some cases entirely imperceptible. The general health is at first but little impaired.

The causes of ovarian dropsy are similar to those of ascites, and the remedial processes must be conducted on the same general plan. Tapping should never be resorted to until the increasing distention begins seriously to affect the general health; the operation cannot be relied on to effect a permanent cure, but with attention to the general health,

may keep it in check so that the patient may enjoy comfortable health for an indefinite period. In many cases the operation requires to be repeated several times. Extirpation of the ovary has been successful in a few cases; but the majority have not long survived it.

Fallopian Dropsy.—Dropsy of the Fallopian tube is extremely rare; in its early stage it is known by a heavy, elongated swelling of the iliac region, spreading transversely, with obscure fluctuation. The quantity of fluid is generally greater than that accumulated in the preceding variety; and the prospect of cure is still less promising, although the same measures are applicable.

Dropsy of the Womb.—This disease—the *hydrometra* of the old authors is generally the result of some structural affection of the uterus. In some few cases, when the orifice of the uterus is closed, water collects in its cavity; sometimes a large cyst, or cluster of hydatids, originating between its tunics, is discharged, accompanied with severe flooding; and occasionally the fluid accumulates in its cellular tissue, by which the organ is distended to an enormous size, while the whole abdomen appears anasarcous.

Symptoms.—Heavy, circumscribed tumor or protuberance in the hypogastric region, attended with obscure fluctuation, and progressively enlarging; the mouth of the uterus is thin and yielding, and the complaint is unaccompanied with pregnancy or ischury.

Treatment.—The general remedial plan is the same as the preceding varieties. When the mouth of the uterus is closed, the water may be evacuated by the introduction of a canula.

Dropsy of the Scrotum.—In some cases the fluid is contained in the tunica vaginalis, or surrounding sheath of the testis; sometimes in the cellular membrane of the scrotum; and in a third variety the fluid has accumulated in the tunica vaginalis of the spermatic cord. *Congenital hydrocele* is that form of the disease in which the communication between the cavities of the peritoneum and tunica vaginalis is inclosed, the fluid collecting within the latter.

Symptoms.—The *vaginal*, or first named variety, is the proper hydrocele. The intumescence is soft, transparent, and pyriform; it is unattended with pain, and enlarges gradually. In some cases the tunic is so distended and transparent that a candle may be seen through its contents.

Treatment.—In recent cases, very cold sitz-baths and the ascending douche, each repeated several times a day, or refrigerating local appli-

cations of iced-water or pounded ice, in connection with the general treatment recommended for the preceding cases, will often effect a cure. When the case has been of long standing, the operation, to be described hereafter, will be necessary.

EMPHYSEMA—INFLATION—WIND-DROPSY.—This affection, which is caused by an accumulation of air in the natural cavities, differs from dropsy proper in the distention being elastic and sonorous. Sometimes the disease results from external injuries penetrating the lungs; sometimes the air is formed by a process of putrefaction or decomposition; and sometimes it is secreted directly from the blood.

Symptoms.—In the *cellular* variety—the *pneumatosis* of Sauvages—the distention is sometimes limited to particular parts of the body, and sometimes extends over the whole surface. It is marked by a tense, glabrous, diffusive intumescence of the skin, which crackles beneath the pressure of the fingers. When arising from a wound in the chest, which penetrates the lungs—*traumatic emphysema*—the inspired air may rush into the cavity of the chest, the cellular membrane of the lungs, and even become diffused throughout the areolar tissue, producing a universal inflation, which is attended with violent palpitation and extreme danger of suffocation. Occasionally the inflation is confined to one side of the chest; it is then called *pneumo-thorax;* and this form is sometimes produced by ulcerations which destroy some part of the pulmonary structure. When arising from fish-poison, mushrooms, or other venom, the disease is accompanied with extensive signs of putrescence and impending mortification.

In the *abdominal* variety—*tympany*—there is a tense, light, and equable distention of the belly, which distinctly resounds to a stroke of the hand.

When the *uterus* is inflated with air, there is light, tense, circumscribed intumescence in the lower part of the abdomen, obscurely sonorous, and accompanied with occasional discharges of wind through the mouth of the womb.

Treatment.—All the varieties of the disease before us are, happily, very rare, with the exception perhaps of tympany, and this is mostly a symptomatic affection. The general plan of treatment is the same as for dropsy of the same structure or organs. In emphysema from wounded lungs, the operation of puncturing between the ribs is sometimes attended with benefit, and the dripping-sheet, followed by dry rubbing or hand friction, is probably the best of the strictly hydrotherapeutic processes. When occasioned by poison, the wet-sheet, so managed as to produce moderate diaphoresis; sips of iced-water, copious

injections, etc., on the plan recommended for *anatomical erythema*, should be resorted to. In the abdominal and uterine varieties, copious cold injections by means of the pump and vaginal syringes, are to be frequently employed; the spray-bath and the ascending douche are also valuable assistants.

Inflammatory Dropsy.—This term is rather awkward, but, unfortunately, I cannot find in the whole range of pathological nomenclature any more appropriate one; and I do not care to invent new technicalities, especially as we have already a vast superabundance. The term comprehends the two diseases, *elephant leg*, which is peculiar to hot climates, and *phlegmasia dolens*, which is peculiar to lying-in women, both of which are characterized by a tense, diffuse, inflammatory swelling of one leg.

Symptoms.—In the tumid leg of childbirth, which has been variously denominated *puerperal swelled leg*, *bucnemia sparganosis*, *phlegmasia dolens*, *phlegmasia lactea*, *ecchymoma lymphatica*, *anasarca serosa*, *crural phlebitis*, and *cruvitis*, the attack usually comes on in the second or third week after parturition; the intumescence is pale, glabrous, equable, elastic, and acutely tender; to the touch there is a sensation of numerous irregular prominences under the skin, and it is accompanied with a constitutional febrile disturbance of the hectic type. In a majority of cases the attack commences with pain in the groin of one side, accompanied with fever, and followed by a swelling, which extends down the thigh and leg to the foot, and in a day or two the whole limb is double its natural size, hot, smooth, exquisitely tender, and moved with great difficulty. The fever usually begins to decline in two or three weeks, but in some cases runs for six or eight weeks, causing extreme emaciation. In a very few instances both limbs are affected simultaneously; and in still rarer instances the arms have been attacked; in many cases the affected limb has remained enlarged and weak through life. It may be added here that a disease very like the one before us, if not identical, has sometimes affected the male sex.

The second variety, the *Barbadoes leg*, *bucnemia tropica*, *elephant leg*, is common to hot climates, especially the West Indies, Arabia, and the Polynesian Isles, where it is called *yava-skin*, from the supposition that it is caused by drinking a heating beverage called *yava*; "and like the gout among ourselves," says Dr. Good, "is regarded in a sort of *honorable* light." It is known, however, in temperate climates, and a few cases have occurred in the United States. The limb is hard, livid, and enormously misshapen; the skin is at first glabrous, but afterward becomes thick, scaly, and warty; in some places bulging out, and in

others deeply indented; the attending fever is irregularly erratic and intermittent, which eventually subsides, and the disfigured limb becomes insensible, and only troublesome from its weight and bulk, which, however, is regarded in some semi-civilized countries as a badge of honor, as the gout is in places where the inhabitants pretend to be wholly civilized.

Special Causes.—The puerperal variety is unquestionably owing to a condition of body which may significantly be termed the *constipated diathesis*. The general pressure on the blood-vessels and lymphatics during pregnancy, and the inflammatory condition of the whole system, which are the common consequences of the ordinary method in which females are fed and doctored through pregnancy and delivery, are exactly calculated to produce this and many other diseases of the lying-in period. The complaint under consideration, though very common in allopathic practice, has never been known, and probably never will be, where the patient has, through the term of gestation, lived and bathed hydropathically.

The second variety is as clearly among the penalties which merciless and unrelenting nature has attached to the use of debilitating stimulants, and impure, unhealthful, and obstructing food, with inattention to the subject of a clean skin.

Treatment.—Puerperal swelled leg must be treated precisely as an acute inflammation. The wet-sheet pack, or frequent tepid ablutions of the whole body, and the constant employment of cold wet compresses to the local affection, are the leading measures of treatment; cold water may be freely drank; and cool injections are generally necessary. The food must be of the kind called "fever diet" in this work.

Medical authors—and they have elaborated many ponderous treatises on the subject—are singularly at variance, and as it appears to me, singularly *foolish*, in their notions of the nature and treatment of this disease; while their practice, or the disease under their practice, or the patient under both, has been singularly unfortunate.

The second variety can only be successfully medicated in its early stage. The pack and dripping-sheet, the leg-bath and leg-douche are the most important processes, with due attention to simplicity and purity of food. Amputation has been tried, but in most cases tetanus, or a gangrenous ulcer has followed; perhaps, however, because the general health was not duly cared for previously to performing the operation.

CHAPTER XIV.

DISEASES OF MIS-OSSIFICATION.

The title of the present group of diseases is taken from the most prominent symptom, which, though indicative of an excess, deficiency, or mal-assimilation of the bony structure, does not very well express the essential nature or proximate cause. It includes:

Rickets—Rachia—Rachitis.
Cretinism—Cyrtosis—Cretinismus.
Mollities Ossium—Softening of the Bones.
Fragilitas Ossium—Brittleness of the Bones.
Osthexy—Ossification of soft Structures.
Exostosis—Bony Tumor.

Rickets.—This disease is probably of modern date. The first account we have of it was published by Glisson, as it occurred in England in the middle of the seventeenth century.

Symptoms.—The malady sometimes exists at birth, but more frequently the first indications are observed from about the eighth month to the third year. It is preceded by a paleness and puffiness of the countenance, and a yellow, sulphur hue of the cheeks; the body at length emaciates, the flesh becomes flaccid, the lower limbs grow thin, while the head increases in bulk, the forehead becomes prominent, the spine bends, the belly is tumid, and the joints are loose and spongy The mental faculties are usually clear and often precocious.

Special Causes.—Hooper says the causes of this disease are, "bad nursing, bad air, bad food, want of cleanliness." It is certainly the most philosophical discourse on œtiology I have ever read in an allopathic book. He might have gone farther back, and told us as truthfully that bad air and bad food, and inattention to personal cleanliness on the part of one or both parents, produce the predisposition to it—the *rachitic diathesis.*

Treatment.—One or two daily ablutions, pure air, plenty of sunshine, *good* mother's milk, abundant cold water-drinking, and brown bread, hominy, wheaten grits, potatoes, and good fruits, are all that need be named among the remedial agencies. More or less deformity will always exist.

Cretinism.—The essential differences between this disease and the preceding, are the tendency to goitre or enlargement of the thyroid gland, and the small size of the brain, with thick skull bones, which characterize the present affection.

Symptoms.—The bony derangement chiefly affects the head and neck; the body is stinted; the skin is wrinkled; the complexion is wan; the countenance is vacant and stupid; the cranium bulges out, particularly in the occipital region, while the crown and temples are depressed; the sensibility is blunted; all the mental faculties are feeble or idiotic; the moral affections seem to be wholly wanting; and a majority of the miserable sufferers are both deaf and dumb.

Special Causes.—Cretinism was first noticed about the same time that rickets first appeared; it has prevailed severely in the low lands of Switzerland, in the secluded valleys of the Alps, and other damp, shaded, or confined places; hence the causes of rickets and cretinism cannot be essentially different, nor need we add any thing to the treatment named for the former.

Mollities Ossium.—A general *flexibility* of the bony structure, formerly denominated *spina ventosa*, is commonly found in the early periods of life, as *fragility* or *brittleness* is peculiar to later age. Its immediate cause is, of course, deficient assimilation of osseous materials, but its more remote and more important cause must lie farther back, in some derangement of the primary nutritive functions.

Symptoms.—A bending or crooking of the bones in different parts of the body, on slight exertion, with little or no pain.

Treatment.—Medical books, in consideration of the deficiency of earthy matter in the bones, have undertaken to remedy the difficulty by introducing phosphate of lime, alkaline carbonates, etc., in liberal doses, into the stomach; and, although such practice may seem very reasonable to those who cannot look beyond a chemical fact to a physiological law, it has never, to my knowledge, been productive of the least benefit. The rational curative measures are the same as for rickets.

Fragilitas Ossium.—In this affection the substance of the bones becomes so brittle that it is apt to break on slight exertions. The immediate cause is a deficiency of the materials of the gelatinous structure; and the general treatment is the same as for the preceding variety.

Osthexy.—This term imports an *ossific diathesis*, a bony habit of

body. The disease consists in a superfluous secretion and deposit of ossific matter, by which the soft parts are more or less indurated or obstructed.

Authors divide this affection into the *parenchymatous* and *vascular* varieties, as the bony material accumulates in the substance of organs, or in the coats or membranes of vessels. The kidneys and bladder are most liable to calculus concretions, for the reason that they are especially designed to secrete from the blood and expel from the body the greater portion of effete alkaline and saline matters; hence *gravel* and *stone* may result from too great a portion of earthy material in the food, or from deficient elimination of its excess in consequence of functional obstruction or debility. Ossific deposites are also occasionally found in the brain, lungs, thymus gland, substance of the heart, structures of the eye, muscles, etc. The vascular form most frequently affects the aorta or other large arteries, and the mitral valves; but in some instances the pleura and other membranes, the trachea, and various cartilaginous structures ossify. In all these cases the symptoms are exceedingly obscure, and the treatment cannot be better expressed than by the general phrase—attention to the general health.

Exostosis.—Calculous or bony tumors may be seated immovably on a bone, or on the periosteum, or pendulously in a joint, or fixed or movable in some fleshy part of the body. These affections are generally sequelæ of gout, rheumatism, syphilis, etc., but sometimes appear in persons of ordinary, though, of course, not perfect health. They are all cases for surgical treatment, and are only to be cured by extirpation or amputation.

CHAPTER XV.

DISEASES OF SENSATION

The diseases of the present group are somewhat incongruous in a nosological point of view; but as they are susceptible of a generic definition, no direct violation of pathological propriety is committed in the arrangement. They may be distinguished by darting or local pains, occurring in paroxysms with irregular intervals, or by perverted sensation, without fever, inflammation, or structural change.

They are all symptomatic of nervous exhaustion, functional obstruc

tion, malformation, or local accident or injury; and it is only when the primary morbid condition is too obscure to be recognized, that they are to be treated as idiopathic maladies. The following are all that require special consideration:

Cephalalgia,	Syncope,
Neuralgia,	Morbid Sight,
Sleeplessness,	Morbid Hearing,
Restlessness,	Morbid Smell,
Antipathy,	Morbid Taste,
Vertigo,	Morbid Touch.

Cephalalgia—Cephalæa—Headache.—The unbiassed and intelligent student, who will diligently labor through the various attempts which have been made by medical authors to define, describe, arrange, classify, expound, and medicate the single and seemingly simple subject of headache, will find enough of confusion confounded to convince him that a system, as baseless as the fabric of a vision, has engaged the minds of many medical philosophers, rather than a careful and correct observation and arrangement of the phenomena of truth, nature, and common sense. The ordinary and every day causes of headache are, indigestible food, overloaded stomach, constipated bowels, torpid liver, inactive kidneys, obstructed skin, oppressed lungs, acidity, flatulence, violent passions, suppressed natural evacuations of all kinds, and their consequences, thick blood, irregular circulation, etc., etc., to which may be added the direct effect of stimulating drinks or nervines, or their sudden withdrawal after the system has been accustomed to their use. And the pain of headache will be *acute, chronic, periodic, throbbing, local*, or *general*, etc., according to a multitude of circumstances which bear upon each individual case. All this is plain and straightforward. But let us see what the books say. Much learning has surely made them mad. Thus Sauvages divides headache into *acute, chronic*, and *partial;* the acute he subdivides into *plethoric, catamenial, hæmorrhoidal, dyspeptic, febrile, throbbing, intermittent, puerperal, inflammatory, catarrhal, nervous, hysterical*, and the *metallic!* the chronic he subdivides into *syphilitic, scorbutic, arthritic, remittent, melancholic, plicose*, and *serous;* and the partial he subdivides into *pains* in *eyes, sockets*, and frontal *sinuses, purulent, nephralgic*, and the *lunatic hemicrania*. Frank divides headache into four species, *cephalalgia, cephalæa, hemicrania*, and *clavus;* and in respect to their nature he subdivides these into *inflammatory, rheumatic, gastric, arthritic, scorbutic, periodic, scrofulous, carcinomatous, syphilitic*, and *nervous*. Dr. Good divides headache into *stupid, chronic, throbbing, megrim*, and *sick*. Dr. Burder

divides headache into *muscular*, *periosteal*, *congestive*, *organic*, *dyspeptic*, and *periodic*. Dr. Weatherhead divides headache into *dyspeptic*, *nervous*, *plethoric*, *rheumatic*, *arthritic*, and *organic*. Dr. Copland divides headache into *nervous*, *congestive*, *plethoric* and *inflammatory*, *dyspeptic* and *bilious*, *cerebral*, *pericranial* or *neuralgic*, *rheumatic* and *arthritic*, *periodic*, *hypochondriacal*, and the *sympathetic*. Dr. Hooper divides headache into *internal* and *external*; the former being subdivided into *congestive*, *sympathetic or dyspeptic*, and *organic*; and the latter into *muscular*, *periosteal*, and *neuralgic*, etc., etc.

The same confusion prevails among medical authors with respect to the pathology and treatment of this complaint.

Treatment.—Whether idiopathic or symptomatic, all severe headaches require prompt and special palliative medication, although the cure must be sought in the removal of the morbid condition on which they depend. The majority of cases can be relieved at once by putting the feet in warm water, and applying cold wet cloths to the head. The hot fomentation to the abdomen is often sufficient. When arising from suppressed menstruation the warm hip-bath is advisable. When the cause is a sudden cold, the wet-sheet pack should be employed. If the stomach is exceedingly irritable, and troubled with obstinate nausea and vomiting, warm water-drinking and the pouring head-bath constitute the most efficacious practice. When arising from the sudden abstraction of stimuli, as of wine, tea, coffee, tobacco, etc., the patient should keep very quiet for several days, and walk, sit, or lie down, as he finds most comfortable, and take frequent warm foot and cold head-baths, waiting patiently for nature to restore the natural sensibility and tone of the organism, so that its machinery can work again without the lash of artificial stimulation.

Neuralgia—Nerve-ache.—Neuralgia is another of those diseases which are among the growing evils of the increasingly enervating customs of civilized society. Until a very modern date, the only form of this disease known to medical men was the *tic douloreux*, or neuralgia of the face; now, however, neuralgic pains, in almost all parts of the body, are very common afflictions. The face, jaws, feet, and breast, are, however, most frequently the parts affected.

Symptoms.—The disease is recognized by acute lancinating pains, along the course of one or more nervous branches of the organ or part affected, which recur in short paroxysms, with irregular intervals; usually there is more or less twitching or irregular convulsive motion of the adjoining muscles. In facial neuralgia the pain shoots from the region of the mouth to the eyes, ears, cheek, palate, fauces, and teeth,

sound teeth have sometimes been extracted on the supposition that some concealed ulcer or caries occasioned the pain. When the foot is attacked, there are racking pains about the heel, darting toward the ankle and bones of the tarsus. In nerve-ache of the breast the sharp darting pains usually divaricate from a fixed point in the breast, and shoot down the course of the ribs and arm to the elbow. When other parts, organs, or particular muscles are attacked, the disease is easily recognized by the sharp, darting, cutting, and intermitting character of the pain.

Special Causes.—All the causes of dyspepsia, and every thing conducive to nervous debility, are among the causes also of neuralgia. Those enervating influences which more especially predispose to this disease are tea, coffee, alcohol, tobacco, excessive brain labor, and depressing emotions, as grief, fear, anxiety, suspense, disappointment, etc.

Treatment.—I know not upon what principle our allopathic friend propose all the most virulent poisons of their materia medica for the treatment of neuralgia, unless it is that the more powerful the pain the more potent should be the poison; or in other words, the more a patient suffers from disease, the more he should be made to suffer from drugs. Arsenic, belladona, Prussic acid, henbane, strychnine, opium, quinine, etc., etc., in terrific doses, are put forward as the most promising remedies, while surgery comes in and kindly offers to interrupt the morbid sensibility by dividing the affected nerves between their point of distribution and the common sensorium.

The disease before us appears under so many complications that the most experienced hydropath will have to feel his way in the majority of cases. Every circumstance affecting the general health must first be inquired into and placed under organic law. Usually some one of the excretories will have been for a long time torpid, and frequently the bowels, skin, kidneys, and liver are all obstructed. The majority of patients we meet with, too, will be worn down with suffering, and poisoned through and through with drugs, or farther reduced by depletions, as bleedings and blisterings; hence they will generally be exceedingly tender and susceptible.

The treatment should generally begin with gentle bathing in tepid or warm water, followed by moderate friction or hand-rubbing. The temperature of the water should be reduced as fast as possible—taking care, however, to avoid aggravating the pain by a sudden chill—consistently with securing a comfortable glow after each application. In some few cases, where the external heat and capillary circulation are not materially deficient, cold, and even very cold water, is more sedative and agreeable than tepid or warm. Local baths, as compresses, half, hip,

and foot-baths, should be first employed, followed by the half or full pack, dripping-sheet, plunge, and douche, as the morbid sensibility diminishes and the strength improves. In many cases there is a kind of sub-paralysis of the limbs, or a rheumatic lameness and rigidity of the muscles of the affected part; in these cases the warm douche, followed by the cold dash, is excellent.

Sleeplessness.—This affection, which is characterized by a difficulty or inability of sleeping, is, when not symptomatic, produced by some mental excitement or bodily disquiet. In the former case the mind is listless to surrounding objects; and in the latter the attention is alive to them. Severe study, intense attention to business, and protracted watching, are common causes of the former variety, and cold feet, eating near bed-time, taking stimulating drink in the evening when unaccustomed to it, or abstaining after having been habituated to it, are the ordinary causes of the latter. The remedies are a hip-bath or dripping-sheet at bedtime, when the trouble arises from mental causes; and the warm foot-bath, abdominal girdle, active out-door walking, and exercising in a cold room while in a state of nudity—a form of air-bath—when the causes are corporeal.

Restlessness.—There are two states of general bodily disquietude, which authors have regarded as distinct diseases. One is familiarly called *fidgets*, and distinguished by a perpetual desire to change the bodily position; and the other, called *anxiety*, is known by an equally restless desire of perpetual locomotion. The common cause of the fidgety variety is too long confinement of the whole body, or any part of it, in a nearly motionless position. Children at school, writers at the desk, females with the needle, especially those of active brains and irritable temperament, often suffer severely for want of free and frequent exercise of the whole muscular system. Worms and some kinds of skin diseases sometimes produce this complaint.

The anxious form of restlessness is peculiar to persons of a highly nervous temperament, and is attended with a distressing or uneasy sensation, particularly about the præcordia. Constipation is a frequent cause in acutely irritable persons, and difficult, local, or pecuniary circumstances, or projects in relation to the future, on which the mind dwells intensely, are among the most frequent of the mental causes; and our medication must be directed to the removal of the existing cause, whatever that may chance to be.

Antipathy.—A feeling of intense repugnance or horror at the

presence of particular objects, or the introduction of particular subjects, constitutes one of the many singular infirmities of our fallen nature. Some persons will sicken at the sight or taste of outter or cheese; some find the smell of roses and mint, or the sound of music, painfully disagreeable; some will detect the presence of a cat in the room without the use of the external senses; some are ready to faint at the sight of blood, wounds, sores, crabs, lobsters, toads, vipers, and other unsightly animals; and some will scream frightfully at the appearance of a mouse or spider. *Probably* these peculiar traits of idiosyncrasy may be produced by frights or other accidents in early life, or by some powerful and perhaps forgotten mental impression of the mother during the period of gestation. The only chance of cure seems to be, in gradually accustoming the patient to the object of antipathy.

Vertigo.—Different forms of vertigo are known by the terms *dizziness, swimming of the head, blind headache*, and *nervous jainting fit;* it is a frequent accompaniment of headache, and is owing to the same exciting and predisponent causes.

Symptoms.—The patient, while at rest, experiences an illusory gyration, or objects around him seem affected with a whirling motion; there is also a sense or fear of falling, with some degree of mental confusion. In some instances the dizziness is combined with illusory sounds, as whispering, murmuring, ringing of bells, beating of drums, roar of cannon, etc.

Special Causes.—The immediate cause or proximate condition is a preternatural pressure of blood upon the nervous substance of the brain; and this is owing in most cases to a morbid viscidity of the blood from retained bile, perspirable matter, or other effete material.

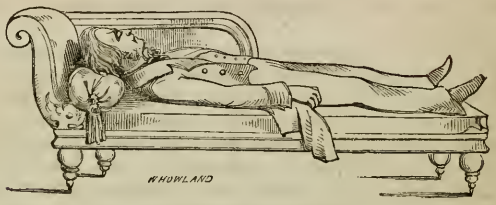
Extreme debility, whether from hard labor, starvation, hemorrhage, or protracted diseases, favors the condition of the brain from which vertigo results, for the reason that the action of the heart being weakened and the capillaries contracted or paralyzed, the blood is pressed with disproportionate force upon the brain. The exciting causes are usually sudden exertion or hurried motion, as raising the head, stooping, etc. Any considerable motion to which the body has never been accustomed, as sailing, swinging, walking circularly, sitting backward in a carriage, etc., may occasion vertiginous sensations in healthy persons. Intoxication, narcosis, and violent fear also produce dizziness, which is experienced on every attempt at motion.

Treatment.—When the body is full and plethoric, or there are evidences of biliary accumulations, a warm water emetic is advisable. In all cases the bowels must be kept entirely free by plain, coarse food,

and injections if necessary; and the skin kept open by one or two thorough daily ablutions. In other respects regard must be had to the idiopathic condition. When connected with great debility, emaciation, loss of blood, or inanition, quiet and sleep are among the leading remedial agencies.

Syncope.—*Swooning* and *fainting-fit* are the principal varieties of the malady before us, which is distinguished by diminished sensibility, inability of utterance, with feeble or imperfect motion of the heart and lungs. The general causes are the same as those of the preceding disease, although to the exciting causes may be added extreme pain, violent passions, sympathy, sudden fright, sudden abstraction of blood, rapid evacuation of fluid accumulated in the cavities of the body, as in dropsy, sudden discharge of the matter of extensive abscesses, retrocession of arthritic and eruptive diseases, excessive fatigue, etc. The treatment consists of a free current of cold air; sprinkling cold water in the face; and if the syncope is prolonged, pouring cold water over the head, and applying the cold compress to the stomach; to which may be added the recumbent position, fig. 189, and warm water with friction to the lower extremities. As soon as the patient can swallow a draught of cold water should be administered.

Fig. 189.



POSTURE IN SYNCOPE.

Dr. Good says—I quote to contrast, not to commend his treatment: "As soon as the patient is capable of swallowing, some spirituous cordial, a glass of wine, brandy and water, fetid tincture, or the aromatic spirit of ammonia, or of ether, should be administered." The reader need not be told that a half gill of pure soft water is an ample substitute for all of the above allopathic notions.

Morbid Sight.—Ingenious nosologists have certainly displayed more analytical than philosophical talent in giving us a list of *nearly six hundred* diseases of the eye! Dr. Good has reduced the formida-

b.[illegible]ist to *twelve*; but I think *one* will answer just as well for all the forms of depraved vision which do not properly belong to the special chapter on diseases of the eye.

Symptoms.—In *false sight* or *illusory vision*—the only species coming within our generic definition—imaginary objects float before the eye, or real objects appear with imaginary qualities, constituting the *ocular spectres* and the *muscæ volitantes* of authors. In many cases of false sight, objects appear of unusually large or small sizes, or multiplied in number; one color is mistaken for another; sparks and flashes of light appear before the eyes, etc.

Special Causes.—Excess of light, plethora, local injuries, as blows, bruises, congenital malformations.

Treatment.—But little can be done therapeutically beyond attention to the general health. Gentle friction and manipulation, frequently holding the eyes in cold water, etc., as in the case of weak eyes, or sore eyes from debility, are occasionally serviceable. It is especially important in all cases of depravity of the special senses, that grease, salt, and all earthy or saline matters be excluded from the food and drink.

Morbid Hearing.—Preternatural acuteness or obtuseness, or disordered perception of sound, results from a variety of inflammatory states or structural changes of the ear. But in some instances the hearing has been so keen as to render the ordinary whispering, and even the respiration of persons present highly distressing, and to render real, imaginary, or illusory noises exceedingly troublesome, or so dull as to disable the patient from taking part in common conversation, without any apparent local affection of the auditory apparatus; although in most cases it is presumable that a deficiency of the ceruminous secretion, or an unnatural irritability or torpor, resulting from powerful noises, violent passions, etc., are the conditions on which the depravity of the function depends. In some cases of semi-parcsis, or partial palsy of the auditory nerve, the ear is only sensible of articulate sounds, when excited by louder sounds intermixed with them; and in some cases particular sounds, as the beating of a drum, the rattling of carriage wheels, the tones of a shrill pipe, the ringing of bells, etc., will excite the function and enable ordinary conversation to be recognized.

Treatment.—Remedially, we can only attend to the secretion of the external ear, and to the general health. Frequently syringing the external meatus with warm or tepid water, followed by cool or cold, and the occasional employment of the head-bath, with a moderate douche to the upper portion of the spine, are the appropriate local measures.

Morbid Smell.—Acrid, obtuse, and absence of smell are, like analogous conditions of the other senses, usually among the symptoms of fevers and local affections. But with some an extreme and painful keeness or total deprivation of the sense exists from birth. Some persons find the smell of roses, and various odors and perfumes which are agreeable to the majority, intolerably offensive and sickening. A temporary loss of smell may result from a slight cold; and a permanent depravation or deprivation of the sense is often produced by irritants, pungents, errhines, and poisonous vapors, as "cephalic snuffs," tobacco dust, cigar smoke, etc. Catarrhal affections, when long continued, always deteriorate the sense, and all high-seasoned dishes and complicated preparations of animal food, are especially injurious.

Treatment.—The head-bath, and the frequent sniffing of cold water up the nostrils, with a rigidly simple diet, constitute the special therapeutic measures.

Morbid Taste.—The tongue and palate, which in the normal state distinguish the chemical and gustatory qualities of substances, as sour, sweet, bitter, rough, aromatic, saline, etc., are sometimes so malformed originally, or so perverted by disease or bad dietetic habits, as to be painfully acute or morbidly obtuse; to remedy which nothing is more appropriate than frequently holding cold water in the mouth, and employing an exclusively farinaceous and fruit diet, the farinaceous part to be as simple and dry as possible, of which unleavened brown bread is the best specimen.

Morbid Touch.—The hand, and especially the extremities of the fingers, possess the nicest power of discriminating the tangible properties of bodies, although the whole skin belongs to the organ of feeling, or sense of touch; and this sense, like all the others, may be preternaturally acute, or insensible, or illusory. Its principal deviations from the normal condition are known as *soreness*, *itching*, *heat*, and *coldness*. The first variety is usually the result of a cold, or a symptom of fever or inflammation; the second is dependent on irritation in the stomach, bile in the blood, or imperfect depuration from the skin; and the third and fourth are caused by exercise, and alternations of, or exposures to, extreme temperature. Beyond a daily cold-bath, and attention to any particular local derangement that may chance to exist, we have nothing to say remedially, except advise a regulation of all the voluntary habits according to the laws of health.

CHAPTER XVI.

MENTAL DISEASES.

THE relation between mind and body is so intricate and intimate that a morbific impression upon either may produce a manifestation of morbid phenomena in the other. The majority of cases of insanity, lunacy, hallucination, or mental aberration, have their origin in bodily disease; yet there are some cases in which the producing cause is purely mental. The present chapter comprises a group of maladies whose most prominent symptoms are abnormal manifestations of the mental operations, irrespective of the nature of the predisponent, proximate, or exciting causes. They may be arranged in tabular form as follows:

Insanity	Melancholy, Madness.	Revery	Absent-Mindedness, Mental Abstraction, Brown Study.
Ungovernable Passion	Fury, Despondency, Hair-Brained.	Sleep Disturbance	Somnambulism, Sleep-Talking.
Hallucination	Sentimentalism, Hypochondriacism.	Fatuity	Irrationality, Imbecility.

INSANITY—CRAZINESS.—Nothing in the whole range of pathology is more difficult than a nosological arrangement of the abnormal states of mind; for the vast diversity of human intellect, and the varied circumstances of excitement, depression, and mis-direction to which it is subjected by individual and social uses and abuses, make it sometimes impossible to say where sanity ends and insanity begins; while among the unquestionably insane we find every conceivable shade and degree of mental peculiarity, from a disproportionate activity of a single faculty or propensity, constituting a *one-ideaism* or an *all-absorbing passion*, whose possessor is merely a *monomaniac*, to the most violent and extreme derangement of several or of all the mental powers, constituting craziness, lunacy, or idiocy.

The malady before us presents two distinct features, which authors have ranked as species of disease: *melancholy*, in which there is a total or partial hallucination, accompanied with extreme dejection, fear, and false apprehensions, while the will is wayward and domineering;

and *mania* or *madness*, in which all the mental powers are greatly excited, and the discrepance between perception and judgment general. Melancholy is subdivided into many varieties, as *gloomy melancholy*, when the patient is mute and retiring; *erratic*, when he is roving and restless; *malevolent*, when he is morose or mischievous, and disposed to injure himself or others; and *complacent*, when he is quiet, affable, and visionary. Madness is characterized as *furious*, when the patient is violent, runs, jumps, mutters, cries, shrieks, etc.; *elevated*, when he is gay, lively, hurried, exulting in his own imaginary importance, which may make him a president, king, prophet, or the Messiah; *despondent*, when he is abjected and depressed; and *demented* or *chaotic*, when the mind sinks into insensibility and forgetfulness, with an entire abolition of the faculty of judgment, yet possessed of unconnected and evanescent emotions, and perpetually active in acts of extravagance without object or design.

Special Causes.—It is natural enough that physicians, considering how few are the sound physiological principles known in the schools of medicine, should suspect some morbid condition of the brain or its appendages as the special cause of all diseases which are characterized by disorderly manifestations of the mental functions. But says Dr. Good: "Concerning therefore the remote or even proximate cause of the disease, we have yet much to learn. From the view we have taken in the proem of the close connection between the mind and the brain, it seems reasonable to conceive that the remote cause is ordinarily dependent upon some misconstruction or misaffection of the cerebral organs; and hence every part of them has been scrutinized for proofs of so plausible an hypothesis, but hitherto to no purpose whatever. The form of the cranium, its thickness, and other qualities; the meninges, the substance of the brain, the ventricles, the pineal gland, the commissures, the cerebellum, have all been analyzed in turn by the most dexterous and prying anatomists of England, France, Germany, and Italy, but with no satisfactory result."

As well might we expect to find the proximate cause of a disorderly communication or action of the telegraphic machinery, by a chemical analysis of the wire between the batteries or at the stations, as to seek the cause of diseased mental manifestation in an analysis of the anatomical character of the brain. The nervous influence and the electric fluid will probably forever elude all attempts at material analysis.

That the phenomena of insanity immediately depend on some excess or defect, or mal-distribution of nervous influence, is sufficiently obvious; nor is it difficult to ascertain the ordinary, remote, or disturbing causes; these are generally strong mental emotions, operating in con-

nection with an organism physiologically unsound. Intemperance is *the* most frequent cause. Gluttony, self-abuse, powerful stimulants, religious excitement, grief, fear, disappointment in objects of love, ambition, or property, reverse of fortune, etc., are named by authors among the ordinary causes.

Treatment.—The *moral* management will be readily suggested by the circumstances of each case. Undoubtedly a well-ordered public asylum is the proper place for the majority of becrazed invalids. But there the *medical* part of the management could be vastly improved. Instead of bleeding and drastic purgatives, which, as the late Dr. Brigham, of the Utica Asylum, testified, only serve to fasten the insanity upon the patient, he should be put upon a bland and simple diet, and a plan of derivative and soothing bathing. In all the appliances of water, especial pains must be taken to keep the feet warm, the head cool, and to avoid all sudden shocks or strong impressions which would produce cerebral excitement. The tepid, shallow, hip, and foot-baths are the leading processes. When the patient is manageable, the wet-sheet pack, followed by the dripping-sheet, is appropriate; but when these or any other general cold bath is employed, care must be taken to have the feet warm; if they are in the least inclined to coldness, they should be put in warm water both before and after the bath.

In our public institutions, insane persons are allowed flesh-meat, coffee, tea, condiments, and sometimes ardent spirits and tobacco—all of which is clearly wrong.

Ungovernable Passion.—This affection, in which the judgment is overpowered by some predominant or ruling passion, accompanied with a marked change of the features and countenance, is seen under the forms of *excited*, *depressed*, and *fitful* or *eccentric* passion. The divisions of the first are innumerable, as *ungovernable joy*, *self-love* or *self-conceit*, *pride*, *ambition*, *anger*, *jealousy*, etc., all of which are marked by a lively, quick, daring eye, and a flushed, tumid face. In the second variety the patient is anxious, pensive, inclines to solitude, and his countenance is pale and furrowed; the ruling passion is manifested in *ungovernable love*, *avarice*, *anxiety*, *longing*, *heartache*, *despair*, etc. The third variety is commonly called *hair-brained passion*, and is characterized by wayward and unmeaning passion, indiscriminate acts of violence, and a hurried and tumultuous manner; it is usually the result of an ill-directed education.

Special Causes.—All the causes of insanity may be among the predisposing or exciting causes of the species of mental pravity under consideration; to which may be added debauchery, gambling, ingratitude,

domestic trouble, loss of friends, crushed hopes, love-sickness, home-sickness, impending calamities, successive misfortunes, social disgrace, incurable secret diseases, bodily imperfection or deformity, contumely, imprisonment, banishment, remorse, etc.

Treatment.—To all the remedial measures named as applicable to insanity, should be added as far as practicable, recreation, occupation, and society. Probably nothing is more reforming to the mind or renovating to the body, in all forms of the malady before us, than regular, steady employment in some *useful* calling.

HALLUCINATION—ILLUSION—ALUSIA.—In this affection the imagination overpowers the judgment. It embraces two varieties, one of which is called *sentimentalism*, or *mental extravagance;* and the other is termed *hypochondriacism*, or *low spirits*. The former is characterized by romantic or fantastic ideas of real life, ardent fancy, excited and pleasurable feelings, and animated countenance; it embraces those forms of mental illusion, called *heroic* or *chivalrous*, *facetious*, *ecstatic*, and *fanatic;* in other words, *romantic gallantry*, *crack-brained wit*, *false inspiration*, and *fanaticism*. The *hypochondriac* variety is distinguished by gloomy ideas of real life, dejected spirits, anxiety, indisposition to exercise, an oblique and scowling eye, sad and sullen countenance, with a languid pulse, and prominent dyspeptic symptoms; it comprehends the mental states known as *vapors*, *weariness of life*, and *misanthropy*, or *spleen*.

Symptoms.—Morbid sentimentalism manifests every conceivable form of extravagant mis-judgment, as uncalled-for acts of gallantry, rampant and unrestrainable jesting, ecstasy, visions, belief in apparitions, or in some preternatural endowment, etc.

Hypochondriacism perceives a thousand evils and accidents which have no existence, and imagines the most whimsical and groundless causes of disquiet, as personal danger, poverty, frogs or geese or other animals in the stomach; all sorts of diseases; one perceives himself transformed into a giant; another into a dwarf; one is as heavy as lead, and the other as light as a feather; some suspect their friends of an intention to murder them, and others suspect themselves of having murdered their friends; they are peevish, pleased and displeased with the veriest trifles, and are often unwilling either to live or die.

Special Causes.—The first variety is often, if not generally, attributable to a superficial and ornamental instead of a substantial and useful education. Novel reading is, perhaps, the most potent and most common cause. "Perilous adventures, love-lorn catastrophes, the stories of magicians, knights, enchanted castles, imprisoned damsels, melting

minstrelsy, tilts and tournaments, and all the magnificent imagery of the same kind that so peculiarly distinguished the reign of Elizabeth, became a very frequent source of permanent hallucination." The second variety is more especially connected with indigestion and disease of the liver; and among the common causes are alcohol, tobacco and intemperance and stimulation generally.

Treatment.—In addition to the measures requisite to recover and maintain general bodily health, the moral or mental medication should consist of pleasant, cheerful, and *sensible* company, with a light and easy, yet regular and steady business occupation, occasionally diversified by reading sound, scientific, useful, and practical books and newspapers.

Note.—Some authors name displacement of the transverse colon as a cause of various forms of insanity; and the French pathologists are said to have frequently found this condition to exist, on post-orbit dissections, more especially in subjects who have died of the varieties of hallucination called *weariness of life* and *misanthropy*. I am of opinion some kind of structural derangement of some portion of the intestinal tube is a much more frequent cause of mental aberration than is generally supposed. I have very often noticed a less degree of the same misaffections of mind, and also many extreme cases of those forms of hallucination termed *fidgets*, *anxiety*, *vapors*, etc., in persons suffering from a displacement of the lower bowel—prolapsus of the fundament. This is generally induced by piles; piles are uniformly caused by costiveness, and the ordinary dietetic habits of civilized society are exactly calculated to produce this diseased condition. Hence there is good reason to apprehend that a great proportion of those cases of mental disorder coming under the present head, are owing to diseases or displacement of some portion of the digestive canal.

But I have noticed another still more frequent cause of still severer forms of "a mind diseased," and I wish to give it particular prominence here, for the reason that it is scarcely alluded to in any medical work with which I am acquainted, in connection with the general subject of insanity. I mean displacement of the uterus. The reasons already assigned show us why this malady should be of frequent occurrence among females. They are more sedentary and in-door in their habits and occupations, and hence more liable to constipation, piles, prolapsed bowels, etc., and the general debility and relaxation of fibre often extends to the uterus and its appendages, producing prolapsus, anteversion, retroversion, and a variety of other local complaints. These cases require the special treatment which will be mentioned hereafter.

REVERY.—*Absence of mind*, *mental abstraction*, and *brown study*, are the usual forms in which the misaffection of mind, termed revery, is exhibited. They are sometimes induced by bodily infirmity, but are more frequently the acquired habits, resulting from a loose, irregular, and superficial education—an education in which the mind is stuffed with words instead of being taught to think and form ideas for itself. This, combined with corporeal inactivity or indolence, is the principal reason why so many college-bred sons of distinguished men, after receiving the highest finish of a *formal* education, and being "put through" a learned profession—law, physic, or divinity—in the offices of the most eminent professors, turn out wordy blockheads or professional automatons, instead of thinking men and intelligent citizens. These remarks apply mainly to the first variety of revery.

It should be remarked, however, that some overwhelming passion, and intense study, especially upon the principles of mathematics and other abstruse subjects, are not unfrequently causes of mental abstraction, while these causes, coupled with the pursuit of some object of ambition or emulation, in which the mind is kept for some time in a state of distraction between hope and fear, frequently induce the variety called brown study—the *studium inane* of Darwin.

The treatment will be readily inferred from the general principles of cure indicated in the preceding remarks.

SLEEP-DISTURBANCE.—*Sleep-walking*, *somnambulism*, and *sleep-talking* are terms which denote the forms, and sufficiently express the nature of the chief varieties of mental disorder connected with sleep. There is in all cases an imperfect and disquiet rest, in which some of the mental powers are but partially asleep. The usual, and perhaps only causes, are an irritated or overloaded stomach, and an overexcited brain. Profound or natural sleep is never accompanied with walking, talking, or even dreaming; hence all the phenomena resulting from disturbed sleep are so many symptoms of abnormal bodily or mental irritation. Worms in the alimentary canal, and diseases of the brain, are peculiarly distinguished by somnambulific manifestations. In some cases of somnambulism, which have been clearly traced to morbid, digestive, or cerebral excitement, and cured by appropriate remedies; the mental powers have been wrought up to high intensity of power, and have solved problems too difficult for the waking state; and persons in such conditions have even been known to exercise clairvoyant powers, as in reading with the eyes shut and closely bandaged, hearing and conversing coherently while entirely unconscious, etc., while the voluntary muscles unaided by the external senses, have performed

various feats of locomotion, as climbing, walking securely in the most dangerous places, etc., which could scarcely have been accomplished unless the "interior sense" had predominated over the special senses.

Our success in medicating these affections will depend entirely on our skill in tracing each individual case of disturbed sleep to its particular cause or causes, and applying our remedial measures according to the principles already explained.

FATUITY.—The definition of this affection by Dr. Good, "defect or hebetude of the understanding," is rather too diffuse; for some people are considerably prone to regard all others as in some way or other defective or foolish in judgment, who happen to feel, think, or act otherwise than according to their own standard of a sound understanding.

That form of mental hebetude which is known as *imbecility*, is divided by authors into various forms, the chief of which are *stupidity*, *forgetfulness*, *credulity*, and *feebleness*; while *irrationality* or *witlessness* comprehends those manifestations of defective reasoning faculties we call *folly* or *silliness*, *dotage* or *superannuation*, and *idiotism*. Of course we must all humbly and modestly confess to some degree of some one or more of these "hebetudes;" but it is only when they are found to form a very prominent feature of a very small minority, that we are to name them as leaves or branches of the great *arbor morborum*.

Stupidity may arise from ignorance, from gross food or gluttony, from idleness, from intoxicating drink, from tobacco, etc. A celebrated author remarks, "Idleness in conjunction with wine and fermented liquors, has a proverbial power in besotting the understanding." Forgetfulness affords many curious examples of oblivious reminiscence. Some forget the place or street they live in; others cannot always pronounce their own name at the post-office; and instances are recorded in which individuals have forgotten their mother tongue, and been obliged to re-learn the language from the alphabet. Credulity may result from misdirection or original malformation; and it exhibits all degrees of imbecility, from a trifling gullibility to a disposition to take hold of subjects with a fervency of faith proportioned to their intrinsic absurdity. Silliness is sometimes a natural infirmity, and frequently the fruit of bad company and low associates in early life. Dotage is usually considered as a mere consequence of old age, but is generally hastened on and aggravated by riotous living or excessive labor, or the habitual indulgence of violent passions. Idiotism generally results from defective organization, or a want of that portion of the brain which manifests the reflective faculties It may, however, be induced by a va-

riety of accidental circumstances or voluntary habits, as habitual drunkenness, excessive indulgence in enervating pleasures, onanism, or self-pollution, violent and protracted emotions of mind, external injury of the brain, loss of blood, etc. It has been produced by the excessive use of the lancet in females after delivery, in brain diseases, and in various forms of insanity.

Treatment.—So far as moral treatment can be of any avail, the principles which should regulate it have already been indicated. In relation to the medical, much may be done to alleviate or cure those cases not depending on congenital or organic causes. In general terms, the treatment should be rather of the rousing, stirring, animating kind; as the dripping-sheet, douche, shower, plunge, spray, or fountain, cataract-baths, etc., combined with active out-door exercise, or regular occupation. The diet should always be simple, bland, rather abstemious, and strictly vegetable. An irrational mind, or one predisposed by organization, accident, or bad habits, to imbecility in any form, should avoid flesh-meat as if it were a very bohon upas.

CHAPTER XVII.

DISEASES OF THE VOCAL AVENUES.

All the diseases which make up the present chapter, have, as their most prominent symptom, some misaffection of the voice or speech, although some of them differ very greatly in every other particular. They may be thus grouped:

Chronic Catarrh	Acute, Chronic, Ozæna.	Speechlessness	Elingual, Atonic, Deaf-Dumbness.
Polypus	Compressible, Cartilaginous.	Dissonant Voice	Whispering, Immelodious, Of Puberty.
Rhonchus	Snoring, Wheezing.	Dissonant Speech	Stammering, Misenunciation.

Catarrh—Coryza.—When this affection is confined to that part

of the mucous membrane which lines the nasal cavities, it is called *cold in the head;* and when the inflammation fixes permanently upon the same membrane in the cavities of the frontal bones, it is called *catarrh in the head.*

Symptoms.—In the *acute* form there is a defluxion of acrid, pellucid, mucous, or ropy matter from the nostrils, with a sense of irritation, and some degree of general fever. In the *chronic* variety the discharge is limpid, without acrimony or irritation, and unattended with febrile disturbance. The third variety, which is produced by an *ozæna*, or nasal ulcer, is denoted by an offensive, purulent, or ichorous defluxion; it is often connected with caries of the spongy bones.

Special Causes.—Sudden exposures to cold and damp, hot drinks, irritant dust or vapors, snuff, smelling salts, strong aromatics, mercurial salivation, often induce this disease. Some authors give us a *senile* variety, owing to "the *natural* paresis of old age;" but I hold that any local palsy before death is entirely *unnatural.*

Treatment.—The acute form requires a few packs to reduce the general feverishness, which, if the diet is rigidly abstemious, and the patient kept in a moderately warm room of uniform temperature, will effect a cure in a very few days. The chronic variety—as also does the nasal ulcer—requires a persevering employment of derivative as well as local treatment. The pack occasionally, frequently sniffing cold water up the nostrils, the hip-bath, and one or two foot-baths daily, with as much exercise in the open air—avoiding, however, chilling and damp winds—as the patient can comfortably bear, comprise the remedial course.

Polypus.—Polypus tumors in the nostrils are of two kinds; the *soft*, or *compressible*, and the *hard*, or cartilaginous. Both are probably morbid growths of the mucous membrane, although the latter variety is generally connected with caries of the ethmoid or inferior turbinated bones.

Symptoms.—Nasal polypi present the appearance of fleshy, elongated excrescences, attached by a slender neck to some part of the Schneiderian membrane, extending in different directions, and affecting the speech by obstructing the nasal cavities. The soft kind is unattended with pain; its color is a pale red, having some resemblance to a common oyster; and it generally shrivels in dry and enlarges in wet weather. The hard polypus is firm, of a highly red or dark color, progresses gradually without alternate diminution and enlargement, and causes pain, with a very disagreeable sensation in the nostril and forehead, on coughing, sneezing, blowing the nose, etc.

Treatment.—In the early stage frequent sniffing of the coldest water will often arrest the tumor. When it becomes troublesome from bulk, extirpation is necessary.

The soft kind may be removed with the ligature or forceps; the latter is generally the most convenient method. The hard polypus cannot always be meddled with without endangering the life of the patient. When attached to or connected with the spongy bones, these may be removed by a skillfu. surgeon.

Rhonchus—Rattling in the Throat.—*Snoring* and *wheezing*, which are the chief varieties of this affection, are symptomatic of other diseases, as apoplexy and asthma, or of gross feeding, a plethoric habit, corpulency or obesity, or of an obstructed skin, by which the lungs are oppressed with vicarious duty, or of atony or debility of the abdominal muscles, which are important agents in the respiratory movements. The cure will be found in a restoration of that equilibrium in the bulk and action of the bodily organs and functions which is correctly termed health. Dr. Good recommends "taking off the obesity," in fat persons, "by repeated venesections, active purgatives, vigorous exercise, and a low diet." I will guaranty a perfect cure in every case of obesity on earth, by proper exercise and diet, *sans* all the bleedings and the purgatives.

Speechlessness—Aphonia—Dumbness.—Inability of speech may result from destitution of tongue—and this may be congenital or accidental—constituting the *clingual* variety; or from paralysis of the nerves of the tongue or glottis, in consequence of some violent injury or shock, forming the *atonic* variety; or from congenital deafness, or deafness acquired in early life, making the variety called *deaf-dumbness.*

Special Causes.—When the inability is not organic, its most frequent causes are severe and protracted colds; violent shocks, as of lightning or electricity; vehement emotions, as of terror, anger, fright; narcotics; mephitic exhalations; poisoning from eating mushrooms, and sometimes shell-fish; metallic vapors; mercurial medicines, etc. There are also many cases of partial or complete loss of voice, the cause of which is almost always overlooked or unthought of by the attending physician: I mean cases of weak voice resulting from mere debility of the muscles of the loins and abdomen. In these cases there may be a moderate degree of general health, with an extreme relaxation or rigidity of these muscles, so that the balance of action between them, the diaphragm, and the laryngeal muscles, is lost; the diaphragm descending when it should ascend, and *vice versa.*

Treatment.—We have no special remedial resources in the majority of cases which depend on incurable malformations or structural lesions; nor can we in the majority of cases dependent on functional derangement, do more than attend carefully to the general health, trusting nature for the local medication. In that form, however, dependent on muscular debility, we can invigorate the affected muscles by the wet compress, frequent hip-baths, various manipulations, as kneading, pounding, thumping, and a variety of exercises which call the weakened muscles into vigorous play, as dancing, jumping, riding a hard-trotting-horse, and vocal gymnastics, as reading, speaking, and declaiming by the elementary sounds of the letters or words, etc.

Dissonant Voice.—The chief depravations of voice have been ranked under the heads of *whispering*, in which the voice is weak and scarcely audible; *immelodious*, when it is habitually rough, nasal, squeaking, whizzing, guttural, or palatine; and the irregularly alternating harsh and shrill voice which is peculiar to the period of *puberty*.

Special Causes.—The last named variety can hardly be regarded as a disease, save when complicated with some accidental abnormity. The other varieties are caused by most of the circumstances which produce the atonic loss of voice, to which may be added over-exerting the vocal apparatus, as in loud speaking or singing, or in straining the voice while the bodily attitude is crooked or distorted, or when the abdominal muscles are so weakened that the main effort at expulsion is thrown upon the muscles of the throat, chest, and diaphragm. Indeed, a misuse of the respiratory muscles, or in other words, a vicious habit of exercising the voice in early life, which has its origin in bad training or bad health, is the most common cause of unharmonious, unmusical, and unpleasant voices in after life.

Treatment.—The special management in all forms of voice wherein there is no "concord of sweet sounds," consists, in addition to such appliances as particular complications may demand, in a regular system of voice-training or vocal gymnastics. Ordinary ingenuity will suggest a thousand variations of the general plan to suit individual cases; but this general plan is, 1. An erect bodily position; 2. Opening the mouth freely and fearlessly in every attempt to read or speak; 3. Reading and speaking slowly, and pronouncing every syllable distinctly, and even giving every letter its full and appropriate sound; 4. Pronouncing the different elementary vowel and consonant sounds of our language, at first slowly, and then as rapidly as possible, taking care to have every sound distinctly enunciated; 5. Hallooing with a full prolonged sound, as by the word over; 6. Laughing by pronounc-

ing hah-hah-hah as rapidly as possible, observing that the abdominal muscles contract—that is, spring out, as it were—at every enunciation; 7. Declaiming on the sea shore in the face of a strong wind, with pebbles in the mouth, *a la* Demosthenes, etc.

Dissonant Speech.—*Stammering* has been called a sort of St. Vitus's dance of the vocal organs. Its principal varieties are called *hesitating*, in which there is an involuntary and tremulous retardation in the articulation of peculiar syllables; and *stuttering*, which is an involuntary re-pronunciation of some syllables or words, alternating with a hurried and convulsive pronunciation of those which follow.

Misenunciation is that form of imperfect speech in which the sounds are articulated freely, but inaccurately pronounced; the principal varieties of this affection are vicious or incorrect pronunciation of the letters *r* and *l*; substitution of soft for harsher letters; multiplication or omission of labials, or exchanging them for other letters; misemployment of dentals, and mispronunciation of gutturals.

All of these errors and imperfections of voice are sometimes the result of organic malconformation; occasionally, as in the case of stammering, of a constitutional irritability of some of the muscles concerned in articulation; more frequently of a want of correct education; and still oftener of a careless or depraved habit; and even in some cases of an exceedingly silly affectation. Many stammerers who talk with great difficulty, read with great facility, and all of them stammer most when they undertake to speak most deliberately, and least when their attention is so engrossed with the subject that they think nothing about picking out single words, or arranging sentences with a view of obviating the infirmity of speech.

Treatment.—All that has been said in relation to the vocal treatment of the preceding disease, applies with equal force to this. The stammerer cannot well be too slow and deliberate in his voice exercises, nor should he attempt much conversation while under the remedial discipline, and he must exercise also the mental qualities of firmness and perseverance. Every expedient which he can devise to expand the lungs and augment their retentive capacity, will facilitate his improvement; as, for example, deep, full, and prolonged inspirations and expirations, during which he may to advantage count one—two—three—four, etc., taking pains to open wide the mouth, and "speak loud and plain" each monosyllable he attempts to utter. The various forms of misenunciation, besides the vocal exercises herein intimated, could with propriety be referred to a judicious course of lectures on elocution, nor would the lessons of the singing master be without value.

CHAPTER XVIII.

DISEASES OF THE SEXUAL FUNCTION.

The integrity of the function whose morbid affections we are about to consider, in its importance to the progressive improvement and well-being of the human race, cannot be over-estimated; yet, unfortunately, with regard to several diseases comprised in the present chapter, we have to regret, as in the case of several preceding maladies, that they are alarmingly on the increase. This is especially the fact in regard to those female diseases known as mismenstruation and prolapsus—diseases of rare occurrence in the days of our grandmothers, and then scarcely known, except in the married relation; but now prevalent among all classes and all ages of females above mere infancy. These complaints are attributable to four general classes of causes; sedentary habits, concentrated and stimulating food, enervating drinks, and unphysiological dress; and as the refinements, and luxuries, and bad fashions of society increase, these natural and necessary consequences must extend correspondingly.

It is a painful reflection, too, on the popular medical system of the day, that its professors, who claim to be the conservators of the public health, content themselves with dosing and drugging, bleeding and poisoning, and talking technicalities to this class of invalids, instead of teaching them how to live healthfully. Soundness and purity in the reproductive organism are indispensable to a perfect and vigorous organization in the offspring of sexual intercourse; and if mothers and daughters could be imbued with the right moral principles and physiological truths, there would soon be an end to these artificially produced, but not the less afflictive and lamentable disorders, which are presented in the following tabular arrangement:

Mismenstruation
- Obstructed Menstruation—Amenorrhœa,
- Laborious Menstruation—Dysmenorrhœa,
- Excessive Menstruation—Hemorrhagic,
- Vicarious Menstruation,
- Irregular Cessation of the Menses,
- Chlorosis—Green Sickness,

Leucorrhea. Spermatorrhœa.

Venereal Diseases	Syphilis, Gonorrhœa, Gleet.	Inordinate Lust	Satyriasis, Nymphomania.
Genital Displacement	Prolapsus, Anteversion, Retroversion, Inversion, Excrescence.		

Mismenstruation.—The catamenial secretion may be obstructed in its discharge, laborious and painful at the usual period, excessive in quantity, vicarious in its locality, irregular in its final cessation, or attended with general derangement of health at the period of its first appearance, which several circumstances constitute the several species of the disease before us.

Symptoms.—Obstructed menstruation—the *amenorrhœa* of authors—is distinguished into *retention* when the menstrual flux is obstructed at the period of its accession; and *suppression*, when the obstruction occurs regularly at the usual periods of recurrence. The former variety is characterized by an œdematous swelling of the feet and ankles at night, and a swelling of the eyes and face in the morning; the latter is attended with headache, difficult breathing, and palpitation. Both varieties are attended with general languor and many dyspeptic symptoms, particularly a capricious appetite, and not unfrequently a longing for innutrient and injurious substances, as clay, slate-stone, charcoal, etc. In many cases there is a harassing cough, with symptoms of a general decline.

In *laborious* or *painful* menstruation—*dysmenorrhœa*—the flux is accompanied with great and sometimes excruciating pain, not unlike the bearing-down pain of labor, generally attended with some degree of actual hemorrhage, and frequently with an expulsion of fragments of a membranous concretion, like that of croup or tubular diarrhœa. In some instances this membranous concretion is thrown off from the entire surface of the uterus at once, in the shape of a small bag filled with a fluid which has been mistaken for an early abortion.

In *excessive* menstruation the catamenial secretion is superfluous in quantity, and attended with an actual hemorrhage from the menstrual vessels. The hemorrhage is known by the fact that the fluid discharged is coagulable, which is not the case with the pure catamenial flux. It exhibits two subvarieties, in one of which the discharge is excessive, from too frequent recurrence, and in the other from too copious a flow at the proper menstrual period. The ordinary flux may be from four

to six ounces, but it is subject to much diversity, and can only be regarded as morbidly in excess when accompanied with marked symptoms of general debility, as paleness, cold extremities, œdematous feet, fatigue on slight exercise, etc.

Vicarious menstruation is characterized by a transfer of the catamenial secretion to a more distant part or organ. The eyes, nostrils, ears, sockets of the teeth, nipples, stomach, lungs, rectum, bladder, and abraded or ulcerated surfaces, have been the seat of the transferred flux.

The *irregular cessation* of the menses, at the term of its natural cessation—usually called the *turn of life*—which in this climate is, on the average, at about the forty-fifth year, is accompanied with symptoms of spurious pregnancy, dropsy, or glandular tumors; the menstrual discharge is irregular; sometimes profuse with long intervals; and at others trifling in quantity, but returning every ten or twelve days, and often succeeded by leucorrhœa.

Chlorosis, or *green-sickness*, though elevated to the rank of a generic term by some authors, is merely a condition of imperfect or deficient menstruation, occurring about the age of puberty, and complicated with so great general debility that the sexual power or propensity is partially or completely lost. The name is derived from the pale, livid, and greenish cast of the skin, which all chlorotic patients manifest more or less.

Special Causes.—In addition to the general causes already intimated, mismenstruation may be induced by repeated colds, especially from an exposure of the feet while the rest of the body is well clad, protracted anxiety, grief or fear, local injury, masturbation, excessive venereal indulgence, repeated miscarriages, etc. Retention of the menses is sometimes owing to an imperforate hymen, requiring for its cure a transverse section of the membranous obstruction.

Treatment.—Fortunately almost every form, state, and stage of mismenstruation is curable by the thorough application of our whole system. The majority of cases, however, require several months', and many of them two or three years' treatment to complete the cure. But fortunately, again, those cases which require a long treatment, can be managed mostly at home, and with very little expense or neglect of ordinary duties or labors. The general plan applicable to all forms of the disease except excessive menstruation is, a morning full-bath, as the plunge, dripping-sheet, or towel-wash, two or three hip-baths daily, one or two foot-baths, the abdominal bandage, frequent and varied out-door exercise, and a plain, solid, rather dry, and unstimulating dietary. The water should in all cases be as cold, yet no colder, than is followed

by quick reaction and a comfortable glow; and, as a general rule, short baths, frequently repeated, are more efficacious than long ones with greater intervals. Hip and foot-baths should always be preceded and succeeded by active yet not exhausting exercise, and the walking foot-bath, when practicable, is always to be preferred. A great variety of exercises can be advantageously employed, as walking, riding, jumping the rope, dancing, shuttle-cock, graces, etc. And those who can find the same recreation and entertainment in light work, as sweeping, dusting, spinning, washing dishes, picking berries, milking the cows, etc., will find exactly the same remedial effects as from amusing and agreeable plays.

When the body is full, sanguine, and plethoric, the wet-sheet pack should be employed daily or tri-weekly for a month or two; and when the whole system is in the opposite condition, called atonic, anhæmic, torpid, etc., the tepid shallow-bath, followed by active and prolonged rubbing, should be substituted. In cases of excessive menstruation, the hip-baths should be colder than in either of the other varieties, generally from 55° to 45°. In the variety, irregular cessation, care must be taken not to disturb the circulation with any powerful shock; the treatment in the main should be mild, the water generally tepid or but moderately cold. The exercises, too, in the last two varieties, should be very moderate.

Vaginal injections are useful in all cases attended with considerable relaxation, hemorrhage, or leucorrhœa; while in all other varieties, the horizontal douche or spray, applied to the hips, abdomen, and loins, is a valuable auxiliary.

When the catamenial periods are attended with much pain, as in dysmenorrhœa, warm applications must be employed until relief is obtained, after which the regular treatment may be resumed. These should consist of the warm foot-bath, warm sitz-bath, hot fomentations to the abdomen, the full warm-bath or even hot-bath, followed by the dry pack, according to the severity of the pain. In some cases the pain is agonizing for one, two, or three days, and the only endurable condition for the patient is to remain dry-packed, or closely covered up in bed, so as to keep the body warm and perspirable until the secretion takes place. Drinking warm water very freely often proves relaxant and sedative in these cases.

The propriety of suspending a part or the whole of the treatment during the menstrual period, not only in the complaint before us, but in all cases, is somewhat unsettled in the code of hydrotherapia. Some practitioners, at least in all ordinary cases, pay no regard to the monthly flux, while others suspend all active or very cold treatment. It is true

the menses are frequently partially suppressed or wholly suspended for several months by the former practice, yet it seldom happens that any permanent injury comes from it. My own opinion, derived from considerable attention to the practical point under consideration is, that patients who are not much reduced in flesh, blood, or temperature, can take full treatment through the catamenial disturbance, not only without injury, but often with benefit; but that those who are emaciated, pale, and cold, with torpid livers and clogged up skins, and a tendency to headache or "rush of blood to the head," will be better off to take no treatment, save a tepid wash-down daily, and such local soothing appliances as particular exigencies call for, from the first decided indications of the menstrual effort, until it has nearly or quite subsided. There are few diseases in which regimen should have a greater prominence among the curative measures. With respect to water-drinking, I have always recommended those of full habit and well expanded lungs to drink rather freely—four, six, or eight tumblers daily—and the thin and feeble to take two or three tumblers in the fore part of the day, and at other times only according to actual thirst. The diet cannot well be too strict, and as constipation is almost always connected with mismenstruation, it should have especial reference to this circumstance.

Brown bread, unfermented bread or cakes, cracked wheat or rye meal mush, with a moderate allowance of the best vegetables and good fruits, constitute the best dietetic plan. Very little animal food, if any, should be taken, and even eggs, butter, and milk, had better be avoided.

Leucorrhœa.—This disease is indiscriminately called *fluor albus* and *whites* in medical books. It affects more or less nearly all females who are the subjects of mismenstruation, and sometimes oxists antecedently, and at others subsequently to the menstrual period of life. It is most frequently the immediate result of local irritation. It has been for a long time, and is yet a question among medical authors, whether this disease is ever infectious, and communicable to the male urethra by the act of copulation. Two years ago, a "professor of diseases of women and children," in one of our city colleges, and an ex-professor of the same branch in another orthodox school, were called upon in a court of justice, to give testimony on this very point. The latter professor testified that he had actually known such infection to result from leucorrhœa, in his own emphatic language, "again, and again, and again;" while the former declared that he did not believe it was possible! Both medical gentlemen, of course, swore conscientiously. It is a general law in pathology—so general that I believe there are no exceptions—

that all abnormal secretions are bland or acrid, precisely according to the less or greater grossness or impurity, or inflammatory condition of the general system; all morbid discharges from mucous surfaces may become, as is often seen in the case of catarrh or coryza, so acrimonious as to excoriate the surface wherever they come in contact with it; and the mucous surface of the vagina may readily, under circumstances of extreme irritation and high inflammatory excitement, secrete an icherous or infectious matter, which will produce in the male urethra a running analogous to gonorrhœa or gleet, though, of course, not as violent nor inflammatory as in true gonorrhœa, nor infectious like it. I have known cases of this kind under such circumstances as precluded all idea of impropriety on the part of the wife, by whom the husband became diseased. These facts ought to be well understood by the practitioner, so that the woman, though she may not be an example of strict personal cleanliness, may be exempted from the charge of moral impurity.

Symptoms.—The discharge is usually of a yellowish-white color, verging to green; but sometimes it is brownish, or slightly red, varying in consistence from a thin limpid fluid, to a thick, tenacious, ropy mucus. It is usually accompanied with weakness or pain in the back, and some degree of "spinal irritation;" when of long standing, it is attended with a sense of heat, and itching or smarting; and in still more advanced stages, the discharge is highly acrid and offensive, often excoriating the whole surface of the vagina.

In the form called labor, the discharge is slimy and tinged with show of blood, and is only regarded as morbid when excessive. The whites of advanced life generally appear soon after the cessation of the menses; the discharge is thin, acrid, fetid, and excoriating, and is sometimes combined with incipient cancer or polypus.

Special Causes.—The same general range of morbid influences which predispose to, or excite mismenstruation. contribute to the production of leucorrhœa, to which may be added mechanical injuries and irritations, as pessaries, repelled eruptions, voluptuous excitement, and uncleanliness.

Treatment.—Dr. Good remarks, in relation to the drug-treatment of leucorrhœa, "The general remedies which have been had recourse to are almost innumerable;" a sufficient acknowledgment that they have generally proved either useless or injurious. The general hydropathic plan of medication is the same as for mismenstruation. The local treatment requires more especial attention. Hip-baths and vaginal injections are always among the leading measures, and the temperature of the water for either purpose must be regulated by the condition of

the patient. In some cases the diseased surface is so irritable that quite warm water proves the most available sedative. It is always safe and generally necessary to commence these baths with water at 80° or 90°, and gradually reduce the temperature to 60° or 50°. The vaginal syringe in severe cases should be employed two, three, or four times a day. Whenever the discharge is excessive and blood-colored, indicative of actual hemorrhage, very cold water should be thrown up the vagina, and cold wet cloths laid over the abdomen.

Spermorrhœa.—Seminal misemission, or an involuntary flux of the seminal fluid without copulation, is often the result of libidinous ideas, especially if to this cause is added the irritation of a gross or highly animal diet, or the still more inflaming and exciting influence of wine, coffee, etc. Not unfrequently the gross and debasing habit of self-pollution, induces such a degree of nervous exhaustion and morbid irritability, that the emission takes place on the slightest libidinous excitement; and sometimes a thin, degenerate, muco-seminal secretion occurs unconsciously during a dreamy or even a profound sleep.

Treatment.—When the general health is fair, and the patient has not been guilty of a concupiscent life, one or two daily cold baths, active out-door exercise, or what is better, regular and laborious occupation, and a plain vegetable and fruit diet, will speedily effect a cure. In constitutions worn down by previous diseases, exhausted by riotous living, or undermined by abused amativeness, the cure requires a strict and persevering observance of all the laws of hygiene, that the patient may out-grow rather than doctor out his ruinous ways. Unfortunately, however, there is no class of patients more fickle, vascillating, and unreliable; the mind partakes of the bodily degeneracy, and it requires a combination of rare and favorable circumstances to keep them from running after every foolish and whimsical impostor who advertizes to cure them with a single bottle of bitters, which, moreover is "pleasant to the taste."

These patients seldom need very active or very cold water-treatment. A daily towel-bath, one or two tepid or moderately cool hip-baths, and a rigidly simple and abstemious diet, afford the best chance of recovery. Salt, sugar, and even milk can be dispensed with to advantage. The evening meal should always be light and as *dry* as possible, and the patient should avoid sleeping on the back, the preferable position in bed being a gentle inclination to one side.

Venereal Diseases.—The affections of the genital organs which result from impure sexual intercourse are among the most loathsome

in appearance and the most deplorable in their consequences that afflict degraded and erring mortals.

Symptoms.—Venereal affections appear in two distinct forms, *syphilis*, or *pox*, and *gonorrhœa*, or *clapp*. The first is a constitutional disease, or, rather, may become so; the second is always a local disease, never extending beyond the genital organs or glands of the groin. Both diseases, however, may coexist in the same individual, and be communicated at the same time. *Gleet* is simply a urethral running; and, though often a sequel of gonorrhœa, may exist from irritation unconnected with venereal taint, and be excited by stone in the bladder, leucorrhœa, and various other causes. These distinctions are important to keep in mind, for thousands have their constitutions ruined by a long mercurial course for gonorrhœa, on the mistaken notion that the disease was in the blood or general system. It should be remarked, too, that syphilis never affects the constitution until after the formation of an ulcer and the absorption of its matter.

Syphilis commences with one or several small pimples, or *chancres*, on some part of the genitals, which gradually fester, and finally terminate in spreading or deepening ulcers, filled with an exceedingly acrid and corroding matter. If this matter is allowed to be absorbed, the glands of the groin swell into hard tumors, called buboes, and often ulcerate. Eventually the whole body becomes contaminated with the virus absorbed from the chancres, and what are called *constitutional* or secondary symptoms appear, as foul ulcers in the throat and palate, livid and copper-colored spots on the skin, or ulcerating scabs, inflamed eyes, pains, swellings, and caries of the bones, etc.

Gonorrhœa—blenorrhœa luodes—consists in a muculent and virulent discharge from the urethra or vagina, attended with a burning pain in passing the water, and considerable, sometimes violent pain, heat, and swelling of the part affected; in some instances the inflammation extends to the glands of the groin, producing buboes.

Special Causes.—Venereal diseases may be generated by promiscuous sexual intercourse, and when produced, the peculiar virus thus developed is capable of propagating the same disease by contact.

Treatment.—The ulcer or chancre should be destroyed by fire or caustic as soon as it makes its appearance. Aqua fortis or lunar caustic may be employed for this purpose. When the ulcer has already spread over a large surface or corroded deeply into the flesh, its virus may be destroyed by repeated applications of a strong solution of the caustic or diluted aqua fortis—one part to six of water. In all other respects both forms are to be treated as ordinary local inflammations. The proper temperature of the water for sitz-baths, which should be fre-

quently employed, will vary greatly in different cases; but in all cases that temperature is to be preferred which produces the most sedative or soothing effect. In some cases the morbid irritability is so extreme that cold water aggravates, while warm or very warm quiets the irritation, and relieves the pain and irritation at once.

Inordinate Lust.—We need not dwell long on this affection. Authors have applied the term *satyriasis* to an ungovernable sexual passion in the male; and the term *nymphomania* to a similar propensity in the female. They are both produced by some local irritation, which may have its origin in the general mental or physiological habits of the individual. The most frequent combination of causes which operate to produce a state of lascivious *furor* is, gross, high-seasoned food, intoxicating drinks, indolence, and personal uncleanliness—in other words, inattention to bathing.

These views of the causation of the disease, are supported by the fact that it is more common in advanced life, even beyond the "three score and ten" period, than in youth or middle age. The cure will readily be found in frequent general cold baths, copious water-drinking, active exercise or occupation, warm relaxing hip-baths, and a simple vegetable diet.

Genital Displacements.—The true pathology or proximate condition of these affections is but little understood by the medical profession, as is apparent from the general ill-success attending the ordinary treatment. The term *prolapsus* is used indiscriminately for all degrees of simple descent, or *falling of the womb;* but in some books the term *relaxation* is applied when the descent is only to the middle of the vagina; *procidentia*, when the uterus descends to the labia; and *prolapsus*, when it protrudes externally. *Retroversion* is that form of displacement in which the fundus uteri descends toward the sacrum, the os uteri or mouth of the womb inclining toward the pubes. *Anteversion* is the reverse of the preceding, the fundus falling forward and the os uteri inclining backward. In inversion the organ is turned inside out while in a state of prolapse. In some cases the upper part of the vagina protrudes into the lower, constituting what is called prolapsus of the vagina.

Symptoms.—Prolapsus of the uterus is attended with a heavy, disagreeable, or painful dragging-down sensation at the lower part of the abdomen, aching or weakness about the small of the back, and when severe, great difficulty or inability in walking. At first there is in-

creased mucous secretion, which increases by degrees until it acquires the character of an obstinate leucorrhœa.

When the uterus is *retroverted* the bowels are irregular or constipated, and from the pressure of the displaced organ on the rectum behind and the urethra in front, there is more or less difficulty experienced in expelling the contents of the bowels and bladder. In this situation the womb often becomes congested, inflammatory, and enlarged, and every attempt at walking is exceedingly painful or exhausting. In bad cases the patient can only endure a fixed, quiet, almost motionless position in her chair or bed. There is, too, usually, considerable tenderness and tension of the whole abdomen.

Anteversion is a less frequent occurrence; it is denoted by difficulty in walking, sense of weight or fullness in the pelvis, with many of the symptoms of prolapsus, and is attended with much less difficulty in evacuating the urine and fæces than retroversion.

Inversion is known by the organ hanging down externally; it is usually the result of violence in extracting the placenta, but may occur from an adhesion of the placenta, or from polypus tumors.

In some instances the falling down of the uterus or vagina drags along the bladder with it, constituting what is called *complicated prolapse*. In this case the bladder, being deprived of the expulsory aid of the abdominal muscles, is incapable of evacuating its contents without artificial assistance.

Genital excrescence consists in polypus or other tumors, issuing from the surface of the uterus or vagina. They are of all sizes and of various degrees of consistence, from the softness of sponge to the firmness of leather.

Special Causes.—Although medical authors and professors of midwifery are continually talking about "relaxation of the ligaments" which hold the uterus in position, as the main cause of its displacement, it is quite clear that this relaxation has nothing whatever to do with it; the yielding or elongation of the ligament being itself an *effect* of the displacement. The natural supports of the uterus are the vagina and the abdominal muscles; if the former is greatly relaxed the uterus will descend, and the ligaments, being kept constantly on the stretch, will finally elongate more or less; and if the abdominal muscles are greatly debilitated, they do not contract vigorously, so as to keep up equable and uniform compression in all the various positions of the body, hence the uterus is liable to fall forward or backward, or incline laterally; and when both are badly relaxed and debilitated, we find both conditions of displacement—falling down and tipping transversely across the pelvis. In corroboration of this view of the subject, I may

advert to the fact, that all the cases of uterine displacement we meet with in practice, with the single and rare exception of such as are produced by violence, occur in females who suffer from the very circumstances which are most efficient in inducing muscular relaxation of these parts, as constipation, piles, dyspepsia, nervous debility, mismenstruation, abortions or miscarriages, preternatural labors, etc.

Treatment.—How impotent for good, and how potent for evil, are all the common chirurgical and drug-shop appliances for the management of these cases, may be inferred from the preceding explanation of their nature and proximate cause. Pessaries innumerable have been invented, trusses, braces, and supporters of all sorts and shapes have been contrived, and blisters, issues, and caustics, of every kind, have been resorted to, while many times the miserable sufferer has been kept confined to a fixed position in bed for six months or a year, all intended to aid, force, and sting the "relaxed ligaments" into contraction, but which have, in nearly all cases, operated greatly to the disadvantage of the *relaxed muscles*, and thereby greatly aggravated the difficulty.

A rational medication will abjure all these "evidences of mechanical and chirurgical skill," and regard, first of all, the general health. All the resources of hygiene must be discriminatingly adapted to each individual case. No class of patients require a more rigidly simple and abstemious diet. I have had many patients confine themselves for weeks to brown bread, boiled potatoes, and baked apples, or some plan as simple, and always with the best results. Nothing will conduce more to bring about a firm, energetic, contractile state of the whole muscular system. If a strict diet is adopted, very little water-drinking is necessary. The bathing part of the treatment must in general be moderate, for the reason that most patients can take but little exercise. A daily tepid dripping-sheet or half-bath, with one or two tepid hip-baths, a foot-bath in the evening, with two or three vaginal injections daily, of as cold water as can be borne without disquiet, is the usual combination of baths which are most serviceable in these cases. To these I would always add occasional packs when the patient has a good degree of reactive power or superficial heat and circulation. As in all other cases, the patient should exercise according to ability; but in bad displacements very little can be done in this way until the uterus is restored to its natural position. This must be done mechanically, when the ordinary external means fail. The os uteri must be found and elevated, or drawn backward or forward, according to the kind of displacement. While the uterus is in position, the abdominal muscles must be strengthened by active yet gentle manipulations, and the re-

laxed fibres of the vagina constringed by injections of a small quantity of very cold water. The patient should commence walking, or increase her usual amount of exercise, as soon as the organ is replaced, and gradually extend the excursions or gymnastics, as the muscular strength improves. When the uterus is inflamed and enlarged, and the parts painful and tender, the replacement should not be attempted until these symptoms have been partially subdued by the treatment. In some cases an appropriate instrument is necessary to effect the replacement, and when the vagina is extremely relaxed, the uterus will have to be supported with a piece of soft sponge inclosed in a delicate capsule of India rubber, until the requisite muscular contraction can be induced.

The inverted uterus should be restored as soon as possible after the accident which induced it, or its contraction will render the operation impossible. The treatment of the excrescent variety comes within the province of the surgeon; and of the various operations proposed for its removal the ligature is the best.

CHAPTER XIX.

DISEASES OF THE URINARY ORGANS.

The various forms of mismicturition, which consist in morbid secretions or discharges of urine, are:

Destitution of Urine—Suppression.
Retention of Urine—Ischuria.
Painful Urination—Strangury—Dysuria.
Saccharine Urine—Diabetis.
Incontinence of Urine—Eneuresis.
Unassimilated Urine—Urinary Diarrhœa.
Erratic Urination—Vicarious Urination.
Urinary Calculus { Gravel, Stone.

Destitution of Urine.—In this affection the urine is not secreted by the kidneys; there is no sensation of fullness or uneasiness in the bladder, nor any desire to urinate. The excrementitious elements of the renal secretion are more or less thrown off by the other emunc-

tories, but not sufficiently to prevent great constitutional suffering, evinced by general torpitude, apoplectic symptoms, etc. Most of the subjects of this complaint are fat, corpulent persons, considerably advanced in life, and the disease generally proves fatal in a very few days.

Treatment.—To relieve the blood as fast as possible of its urinous accumulations, the wet-sheet pack and dripping-sheet should be employed; while the action of the kidneys should be excited by the alternate hot and cold hip and foot-baths, or better still, perhaps, the warm douche followed by the cold to the loins and abdomen. The bowels should also be moved by copious injections.

Retention of Urine.—In this disease the urine is duly secreted, but its flow is interrupted by spasm, inflammation, calculi, tumor, stricture, abscess, concretions in the rectum, distention of the vagina, or debility or palsy of the bladder itself. A frequent cause is over-distention of the bladder in consequence of holding the water too long, when it has been inconvenient to void it. This condition is always attended with pain, protuberance, and a frequent desire to urinate.

Treatment.—In most cases a hot hip-bath, or hot fomentations to the abdomen, followed by a dash of cold water, will relieve; but if they fail, the catheter must be promptly employed.

Painful Urination.—*Strangury*, or a painful and dribbling discharge of urine, may result from several of the causes of the preceding malady; but generally it is excited by acrid food, drinks, or medicines, particularly cantharides, or Spanish flies, and is attended with a scalding sensation. It is also occasioned by a stricture, or callous thickening of the lining membrane of the urethra, in which case the micturition is extremely troublesome and distressing, the straining often causing the bowels to deject their contents at the same time.

Treatment.—These cases are generally relieved by copious water-drinking, and warm hip-baths; in severe cases the full warm-bath may be necessary.

Saccharine Urine.—*Diabetis*, termed *water-flux*, or *urinal dropsy*, by the authors, consists in a free or profuse discharge of urine, of a violet smell, and generally of a sweet taste, attended with great thirst and general debility. Medical writings are full of speculations as to the nature and proximate cause of the saccharine matter or sugar which is sometimes found in very large quantities in the urine of diabetic patients; but as they shed no light on the subject, they are hardly worth

our attention and limited space. The most important *fact* they have made us acquainted with is, that the skin is *always* in a condition of extreme torpitude.

Treatment.—This disease has terminated fatally, with very few exceptions, under allopathic treatment. Instead of dosing the kidneys or stomach, as has been and yet is the custom of the drug-doctors, we should direct our main efforts to restore the cutaneous function, which is, in fact, the only way to take off the excessive determination to, and irritation of, the kidneys. When the skin is cold, pale, and bloodless, the tepid dripping-sheet, followed by the dry pack so as to produce moderate perspiration, and the half or shallow-bath, followed by the dry rubbing-sheet, with thorough friction to the whole surface, are the leading measures of treatment. Water may always be drank to the extent of thirst, and the diet should be mainly farinaceous, and the articles principally dry or solid, as wheat-meal biscuits, brown bread, roasted potatoes, Graham crackers, etc.

Incontinence of Urine.—*Eneuresis*, as the present form of morbid urination is generally called, is a frequent or perpetual discharge, with difficulty of retaining the urine. It is variously occasioned by an acrid quality of the urine, local irritation, atony or debility of the sphincter of the bladder, and a superabundant secretion. The remote causes are chiefly hot drinks, diuretic drinks or medicines, intoxicating liquors, etc. The plan of cure is the same as for the preceding disease, especial care being taken to avoid, correct, or remove the exciting causes.

Unassimilated Urine.—In this affection the urine is impregnated or colored with various alimentary or medicinal articles which have been taken into and have found their way to the kidneys, and through the bladder, unchanged. Rhubarb, prussiate of potash, and other drugs pass rapidly to the kidneys without undergoing decomposition; and those articles which are called diuretics are carried to the kidneys directly without going the rounds of the circulation. In some cases of impaired digestion, the urine is impregnated with a matter resembling chyle. This affection is but an "effort of nature" to rid the body of extraneous ingredients; and hence copious water-drinking, a strict diet, and a daily bath are all the remedial measures which seem to be indicated.

Erratic Urine.—A vicarious discharge of urine at some foreign outlet is not an unfrequent occurrence. It is an evidence of the *vis med-*

icatrix naturæ, to deterge the blood of its urinous elements when some obstacle prevents their expulsion at the natural emunctory, or when from atony or disease of the kidneys it is not secreted at all. In such cases a urinous fluid has been evacuated by the stomach, bowels, skin, salivary glands, ears, eyes, nostrils, breasts, navel, and at ulcerous surfaces and fistulous openings. The medication is the same as in the preceding diseases.

URINARY CALCULUS.—Accumulations of calculous matter in the urinary cavities, are either *renal* or *vesical*, as they are found in the *kidneys* or *bladder*. Renal calculi comprehend the various forms of urinary *sand* or *gravel;* and vesical calculi constitute the various kinds of *stone*.

The chemical elements of these concretions are urea, uric acid, lactic acid, sulphates, hydrochlorates, and phosphates of potash, soda, and ammonia, and various other occasional ingredients. The most common form of urinary calculus is that called the *lithic* or *uric acid*, consisting of urea with some free acid and ammonia.

The *oxalate of lime*, called also *mulberry calculus*, is the next in frequency; and the other most frequent varieties are the phosphate of lime and ammonia, and phosphate of magnesia calculi. They vary in size from fine particles of sand to lumps of several ounces.

Symptoms.—Calculous matter in the kidneys is attended with a fixed pain in the loins, shooting downward toward the thighs, which are affected with numbness; the pain is increased by exercise; the urine often deposits a sandy sediment, which may be either of a white or red color; the pain often alternates with a sense of weight.

The passage of a large gravel or sandy particle through the ureters is often intensely agonizing, and accompanied with nausea, fainting, and generally retraction and inflammation of one of the testes. The pulse, however, is not affected, from which circumstance this affection may be distinguished from inflammation of the kidneys or bladder.

If the calculus is stopped in the ureter, heat, thirst, and fever come on, and the retained urine being thrown back into the blood, soon occasions intermitting pulse, coma, convulsions, and death.

Stone in the bladder produces a frequent desire of making water, with a difficulty of discharging it; there is acute pain at the extremity of the urethra, and on sounding the bladder the instrument meets with a sonorous resistance. After horseback-riding, or any hard, jolting exercise, the urine is bloody; in some cases it is voided by drops, and sometimes the stream is suddenly stopped before urination is completed. When the stone becomes large there is a dull pain about the

neck of the bladder, and the rectum is affected with a troublesome te nesmus.

Special Causes.—Hard water, the free use of salt, alkalies, especially the ordinary employment of saleratus; strong acids, as vinegar, vinous and fermented liquors, and flesh-meats, are the most common and most efficient causes.

The general counection of the calculous or *lithic acid* diathesis with the *gouty*—both being almost always manifested in the same person—points with unerring certainty to animal food and wine as among the leading causes.

There is no doubt in my mind that the salts and maguesia with which nursing mothers and sucking infants are so frequently dosed "for medicinal purposes," occasion many of the cases of gravel and stone we meet with in young children.

Treatment.—To alleviate the suffering, the warm hip-bath, and in extreme cases the full warm or hot-bath is necessary; and if the pain is prolonged, the wet-sheet pack, of two or three thicknesses, will be the best sedative.

The curative treatment consists in freeing the whole system from all extraneous ingredients as rapidly as possible, for which purpose the diet must be strictly vegetable; the drink nothing but pure soft water, and frequent packing and rubbing wet-sheets, with such additional appliances as the general health may demand.

Our old-school friends have a variety of chemical tests to determine the *acid* or *alkaline* predominance of the calculus; if acidity prevails, alkalies are administered; and if alkalies are most abundant, acids are the remedies. This is like putting out a fire by throwing on green or wet wood; it dampens the flame for a moment, but increases the combustion in the end. These acids and alkalies are all the while filling the system with the very ingredients which afford the material for calculous formations. The surgical operation for stone will be considered hereafter.

Note.—The success which has attended the *diuretic* treatment of calculous affections, in the hands of some physicians who have made this branch of the profession an exclusive business, is corroborative of the pathological and therapeutical views above advanced. The treatment of these "gravel doctors" consists mainly in the free use of *vegetable* diuretic drinks—decoctions of dandelion, milk-weed, queen of the meadow, etc. These drinks are continued for several months, and by increasing the amount of fluid which passes through the kidneys and bladder, assist to wash away the superfluous earthy particles.

CHAPTER XX.

DISEASES OF THE SKIN.

Some *three hundred* abnormal appearances of the skin have been described as distinct diseases by authors; and I know not why a sufficient amount of ingenious but useless analytical skill, by elevating every peculiar mark, spot, blotch, patch, or pimple, to the rank of a specific malady, might not extend the list to three thousand. The following tabular arrangement comprehends all that are important to distinguish, for either theoretical or practical purposes:

- **Cutaneous Rashes**
  - Rose Rash,
  - Gum Rash,
  - Lichenous Rash,
  - Pruriginous Rash,
  - Millet Rash.
- **Scaly Eruptions**
  - Dandruff,
  - Leprosy,
  - Psoriasis,
  - Ichthyiasis.
- **Blains**
  - Water-Blebs,
  - Herpes,
  - Rhypia,
  - Eczema.
- **Humid Scalls**
  - Impetigo,
  - Porrigo,
  - Ecthyma,
  - Scabies.
- **Macular Skin**
  - Veal Skin,
  - Mole,
  - Freckles,
  - Sunburn,
  - Orange Skin,
  - Piebald Skin,
  - Albino Skin,
  - Cyanosis.
- **Morbid Sweat**
  - Profuse,
  - Bloody,
  - Colored,
  - Scented,
  - Sandy.
- **Cutaneous Vermination**
  - Lousiness,
  - Insect Bites,
  - Worms.
- **Morbid Hair**
  - Bristled,
  - Matted,
  - Extraneous,
  - Forky,
  - Gray,
  - Baldness,
  - Areated,
  - Discolored,
  - Sensitive.

Cutaneous Rashes.—*Rose Rash—roseola* of authors—is an efflorescence which appears in blushing patches on the cheeks, neck, or

arms, often fading and reviving; usually appearing in the spring or autumn. *Gum Rash—strophulous*—is peculiar to early infancy, and consists in an eruption of red or whitish pimples about the face, neck, and arms, interrupted by irregular patches of inflammatory blush, and manifesting several sub-varieties, called *red gum*, *white gum*, *tooth rash*, *wild-fire rash*, etc. The *lichenous rash* is characterized by a diffuse eruption of red pimples, with a troublesome and sometimes intolerable sense of itching or pricking; it is subdivided into *simple lichen*, *summer rash*, or *prickly heat*, *wild lichen*, *nettle lichen*, *hair lichen*, *clustering lichen*, *livid lichen*, according to its varying and unimportant appearances. *Pruriginous rash* is known by a diffuse eruption, with pimples of nearly the same color as the cuticle, itching acutely, and when abraded or broken by the nails, emitting a fluid that concretes into minute black scabs. The *millet rash* is distinguished by very minute, tubercular, distinct, milk-white, hard, and glabrous pimples, which are confined to the face.

Special Causes.—Roseola is often symptomatic of other diseases. When idiopathic, it is produced by sudden and extreme alternations of temperature, drinking very cold water after violent exercise, etc. Gum rash is produced by coarse woolen clothing, uncleanliness, greasy and highly-salted food, and various other bad dietetic habits of either mother or child. Lichenous rash is more frequently attributable to morbid bile than to any other single cause; and when a torpid liver is connected with an obstructed skin, and both of these conditions with a high summer temperature, we have the causes of its worst forms. Dr. Good remarks: "So far as I have seen, the varieties of this disease depend upon a *peculiar irritability* of the skin as its remote, and some *accidental stimulus*, as its exciting cause." If there is any thing but "superfluous nonsense" in such a flourish of words, I am no judge of the article. Pruriginous rash is more especially attributable to retained perspirable matters, and these have their cause in cutaneous uncleanliness. Some authors have imputed this form of skin disease to a fish diet. Millet rash, Dr. Good imputes to "a torpid state of the cutaneous excretories, or rather of their mouths or extremities, which are obstructed by hardened mucus." This is a roundabout but very delicate way of representing the idea of a dirty skin.

Treatment.—I have many times in the course of this work had occasion to characterize the popular practice in relation to certain diseases as barbarous, unphilosophical, absurd, pernicious, etc. I have used these terms deliberately, conscientiously, and, in my own estimation at least, understandingly. But if I were to express an honest opinion of the ordinary drug-medicatior in the whole range of skin dis-

eases, I should apply to it all the preceding epithets, and add to them the little word *silly*. The ridiculous was never at a remoter distance from the sublime, than is the prevailing drug-treatment in affections of the skin, from true science.

The common, every-day remedies in the majority of skin diseases. are mercury in its most potent forms of corrosive sublimate and red precipitate, arsenic, antimony, iodine, preparations of lead, copper, zinc, and other minerals, with a formidable list of irritating and narcotic ointments, all of which tend to *repel the disease to the internal parts*, besides poisoning the system with the drug-remedy. Many an adult has been indebted for a fatal disease, and many a child for a ruined constitution, to the medication of a skin disease. For a single illustration—and thousands like it might be quoted from standard medical books—Dr. Good, who ascribes millet rash to an obstructed skin, instead of telling us how to clear out the obstruction, prescribes "lotions of brandy, spirit of wine, tincture of myrrh, a solution of sulphate of zinc with a little brandy added to it."

The hydropathic management is intended to answer two indications; 1. To allay the local irritation; 2. To purify the blood and all the secretions. In almost all cases of excessive irritation of the skin, unaccompanied with fever, tepid water is preferable to very cold for bathing purposes. The pack, followed by the half-bath at about 72°, with moderate rubbing or friction, is one of the best leading processes. The half-bath alone, if accompanied with a rigidly plain and abstemious diet, will generally very soon effect a cure; and the same may be said of the dripping-sheet; in fact almost any kind of washing, if sufficiently frequent, with a plain diet, will cure in due time. There are no diseases in which stale meats, highly-salted or highly seasoned foods, greasy mixtures, and excessive alimentiveness, have a more pernicious influence than in the affections under consideration. It is also of some importance to preserve a uniform temperature of body, avoiding all extremes of heat or cold, and especially damp, chilly winds. When the itching or pricking is unendurable, the full warm-bath may be advantageously employed as an occasional sedative.

Scaly Eruptions.—The first variety, *dandruff*, consists in patches of fine branny scales, easily separated from the cuticle, which is not irritable or tender. It may affect the head, trunk, or whole body; in the latter case the scaliness is red, brown, or yellow.

Leprosy—lepra—lepriasis—presents patches of smooth laminated scales, of a circular form, and of different sizes, surrounded by a reddish prominent circle, with a central depression, scattered generally

over the surface. Its principal sub-varieties are the *common* or *white leprosy*, and the *black leprosy;* so called from the color of the scales, which varies from a bright white to a dusky brown. In some cases the scales exist in scattered patches and in others in confluent clusters. It has generally been regarded as contagious, although some authors dispute its contagiousness altogether.

Psoriasis—dry scall—rough scabies—consists in bright patches of continuous scales, of indeterminate outline, generally appearing in serpentine or tortuous stripes, and found chiefly on the back and face, but sometimes extending over the whole body. In children it is considered contagious. The surface is often chapped and excoriated, and itches or burns whenever exposed to unusual heat. A sub-variety of this affection has been called *grocer's itch*, *baker's itch*, etc. It frequently affects the hands of grocers, bakers, bricklayers, washerwomen, and bleachers, especially in the spring and fall.

Ichthyiasis—fish skin—is a harsh, papulated, watery rind, or horny incrustation, of a dusky, brown, or yellow color, sometimes covering the whole body, except the head and face, palms of the hand, and soles of the feet; and sometimes the entire body, including the face and tongue. In some cases horn-like excrescences sprout out of the incrustations, and occasionally grow to the extent of several inches. It is regarded by authors as a morbid development of the cuticle, and is generally congenital.

Special Causes.—Gross food, personal uncleanliness, and sudden alternations of temperature, are the ordinary causes. Dandruff in the head is often produced by too much head apparel, greasing or oiling the hair, confining it too closely on the head, and excessive brain labor. That leprosy was regarded as emphatically a disease of bodily impurity, when it prevailed among the ancient Hebrews, is evident from the whole tenor of the code of the Jewish law-giver on the subject of personal cleanliness, especially as related to the food of his people, and the rigid measures of purification deemed necessary in the treatment of lepers under the Mosaic dispensation.

Treatment.—The principal point of difference in the management of cutaneous rashes and scaly eruptions is this: in the latter, on account of the less degree of irritability or tenderness of the skin, water of a colder temperature may be employed, and considerable friction can generally follow the bath with advantage. Probably the most efficacious treatment in a majority of cases, would be the long pack, from one to two hours—using two or three thicknesses of the wet-sheet, followed by a thorough rubbing with the dripping-sheet. Of course, when there is no preternatural or feverish heat, due precautions must be taken to

secure proper reaction or a comfortable glow after each pack. Dandruff of the body can always be cured by a persevering employment of the wet towel; and when the head is badly affected, so that the hair is loose and easily falls out when the comb is used, the hair should be worn rather short, and the head bathed once or twice a day in very cold water.

Blains.—These affections consist in roundish elevations of the cuticle, containiug a watery fluid.

In *water-blebs—pompholyx*—the eruptions, which are mostly distinct, and break and heal without scale or crust, contain a reddish transparent fluid. They appear successively in various parts of the body, of the sizes of peas, filberts, or walnuts, sometimes bursting and healing in three or four days, but occasionally forming an ulcerated surface.

Tetter—herpes—is an eruption of vesicles in small distinct clusters, with a red margin; transparent at first, but soon becoming opaque; it is attended with tingling or itching, and the vesicles concrete into scabs, and desquamate in the course of two or three weeks. It presents several sub-varieties, as *miliary*, when the vesicles are millet-sized; *corrosive*, when the vesicles are hard and discharge an acrid, corroding fluid, which spreads in serpentine trails; *shingles*, when the vesicles are pearl-sized, and spread in clusters around the body like a girdle; *ringworm*, when the vesicles have a reddish base, and are united in rings; *rainbow-worm*, when the vesicles, which unite in small rings, are surrounded by larger concentric rings of different hues, and *local*, when they are limited to a particular part.

In *rhypia—rhupia—sordid blain*—the eruption consists in broad, distinct vesicles, having a slightly inflamed base, and filled with a sanious fluid, which often produces gangrenous and offensive eschars. The scabs are thin and superficial, and easily rubbed off and reproduced.

Eczema—heat eruption—consists in minute, distinct, but closely crowding vesicles, containing a transparent or milky fluid, attended with troublesome itching or tingling, and terminating in thin scales or scabs.

Special Causes.—Rayer, who has written an elaborate treatise on diseases of the skin, assigns "chronic vascular inflammation or irritation," as the nature, cause, sum and substance of nearly the whole catalogue, while Drs. Good, Cooper, and Thompson, equally eminent authors, dispose of this branch of the subject quite as conveniently by the phrase, "a peculiar irritability with debility, either general or local"—phrases which I am sorry to say I cannot divine the meaning

of. Indigestible food and intoxicating liquors are the ordinary causes of water-blebs. Tetter is generally owing to acrid bile, thrown upon the surface. Rhypia almost always affects children who have been reduced by bad nursing and bad drugging. Heat eruption is usually produced by violent exercise, exposure to hot air, or the direct rays of the sun, and not unfrequently by the use or abuse of mercury.

Treatment.—In addition to the general plan of treatment recommended thus far for skin diseases, the digestive function, being more particularly implicated in the diseases before us, requires some special additional attention. In all the varieties of tetter or herpes, free water-drinking, frequent hip-baths, and the abdominal girdle are appropriate. In the sordid blain of children, the parts affected should be frequently washed in very cold water, except when the abraded surface is itchy and tender, when warm or tepid washing is the most soothing.

Humid Scalls.—The present genus of scall or scale-skin diseases is characterized by an eruption of small pustules, either distinct or confluent, which harden into crustular plates.

Impetigo—running scall—appears in yellow, itching, clustering pustules, terminating in a yellow scaly crust, intersected with cracks. It is generally confined to the hands and fingers, but sometimes extends over the lower extremities, and occasionally affects the neck and face. A thin ichor or purulent matter often issues from the numerous cracks, which corrode the skin and cellular membrane; and in some cases tho aggregated scabs form a thick, rigid casing around the affected limb so as to impede its motion. Sometimes the disease commences with a puffy swelling of the face, with œdema of the eyelids, very much resembling erysipelas, but without its smooth polish.

Porrigo—scabby scall—tinca—consists of straw-colored pustules, which concrete into yellow scales. Its principal sub-varieties are, the *milky scall*, or *crusta lactea*, which chiefly affects infants at the breast, the pustules commencing on the cheeks and forehead, and often covering the whole face with a continuous incrustation; and the *scalled head—tinea capitis*—found mostly in young children, marked by pustules which commence in the scalp in distinct patches, and gradually spread until the whole head is covered, and the roots of the hair destroyed. It is generally regarded as contagious. Other less important forms have been called *lupine*, *honeycomb*, *furfuraceous*, *ringworm*, etc.

Ecthyma—papulous scall—is characterized by large, distinct pustules, raised on a hard red base, and terminating in hard, greenish, or dark-colored scabs. It occurs at all periods of life, from the earliest infancy to advanced age, and is very often symptomatic of other diseases.

Scabies—itch—is an eruption of minute pimples of a papular, pustular, vesicular, or mixed character, accompanied with intolerable itching; it is found chiefly in the flexures of the joints or between the fingers, and is highly contagious. It is one of the most complicated of the cutaneous diseases, presenting many sub-varieties, the principal of which are the *papular* or *rank itch*, the *vesicular* or *watery itch*, the *purulent* or *pocky itch*, the *complicated*, in which the disease extends over the body, often affecting the face, and the *mangy itch*, which is produced by handling mangy animals.

Special Causes.—Most of the forms of humid scalls are owing to the combined operation of two sets of causes, one of which is negative and the other positive. The negative causes are the absence of water, soap, flesh-brushes, and coarse towels, the positive, are gross and irritating food, as fried pork, salt ham, sausages, old cheese, fried cakes, and cooked and burnt fats of all kinds, and acrid or stimulating drinks, as hard cider, acid wines, and ardent spirits. Some forms of humid scall, which are confined to the hands and feet, are occasionally produced by severe exposures to cold or wet; a remark which holds true also of some forms of dry scall which are confined to the extremities. Mothers ought to know that *their* dietetic habits may induce these and many other cutaneous diseases in their offspring while nursing, and even before birth.

Treatment.—Thorough and frequent ablutions, with a plain vegetable diet, and the constant use of wet compresses when the skin is abraded or ulcerated, comprise the general remedial course. The patient should be kept in a moderate uniform temperature, and when the hands or feet are deeply cracked, sore, and exposure is inevitable, the sores should be anointed occasionally with olive oil or sweet cream, taking the precaution to wash or soak the part in warm water before applying it. Parents, as they value the future health of a child, should avoid all repellant lotions, ointments, or all-healing specifics, in all forms of skin diseases. They may indeed smooth the skin, but the disease will be only transferred to an internal and more vital part.

The whole system of allopathic medication is calculated to *drive the disease in*; but all rational practice will contemplate the exact contrary. On so simple a disease as the common itch, which is always cured as soon as the skin can be made clean, nearly the whole force of the apothecary shop has been spent in vain; and the disease has been cured by two or three thorough *soap-sudsings*, after sulphur, lead, mercury, arsenic, tar, turpentine, human and animal urine, chalybeate waters, gunpowder and whiskey, gin and salts, and white and red precipitate ointments had been used without success.

Cutaneous Vermination.—The cuticle may be infested with the *common louse*, which mostly inhabits the heads of uncleanly children; the *crab louse*, which is found chiefly about the groins, pubes, and eyebrows of unhealthy persons, producing extreme itching; the *common flea*, whose eggs are deposited on the roots of the hair and on flannel; the *chiggre*, a West Indian flea, not more than one fourth the size of the common flea, which deposits a bunch of minute eggs in the feet of dirty persons, sometimes occasioning ulceration and mortification; the *tick*, of which there are several varieties—the *domestic tic*, *itch tick*, and *harvest bug*—whose bite occasions an itching and smarting pain; the *Guinea-worm* of the Indies, the *gad fly*, which is common to quadrupeds, but sometimes burrows in the mucous membrane of human noses; and the *hair worm*, which, by the way, involves a disputed point, whether the infestment is a *live animal*, or merely a morbid growth of *real hair*.

Personal cleanliness is the best preventive of these intrusive creatures, and cold compresses are the best remedies when bitten by any of them. The second variety, crab louse, is often excessively troublesome. Medical books tell us that strong mercurial ointment is sure death to them; and the same may be said of strong soap-suds, or a sufficient amount of cold bathing and friction without the soap.

Macular Skin.—Simple discolorations of the surface are generally the result of depraved secretions, retained excretions, the introduction of drugs or foreign substances in the body, blows or bruises, or of exposure to strong cold winds or hot sunlight. Sometimes, however, a change in the color of a part or of the whole skin takes place, which we are unable to trace to either of these causes; and one example—cyanosis—is frequently owing to organic malformation of the heart.

In the *veal skin* variety the skin is marked by white, shining, permanent spots, the superincumbent hairs falling off and never reappearing. The *mole* is a permanent, circular, brown patch, sometimes slightly elevated, and crested with a tuft of hair. *Freckles* are yellowish-brown dots on the cuticle, resembling minute lentil seeds, and often transitory. *Sunburn* is a tawny discoloration from exposure to the sun, which disappears in the winter; *orange skin* is mostly confined to young infants whose mothers were affected with torpidity of the liver during gestation, but it sometimes appears in adult life from biliary obstruction. *Piebald skin* is a general marbled appearance of the cuticle, with alternate patches of black and white. *Albino skin* is a dull-white state of the cuticle, with rosy pupils, weak sight, and white or flaxen hair; it is usually found among negroes, but is sometimes known

among the white races; it is sometimes congenital, and in some instances the adult black and also white, have changed to Albinoes.

Cyanosis—blue disease—cyania—is known by the whole skin being more or less blue, the lips purple, with general dullness of mind and debility of body; it is always congenital.

Special Causes.—Severe fevers have been followed by various permanent discolorations; even a black man has been transformed into a white man by this cause. In some cases, spotted and motley-colored skins are hereditary. Mineral medicines often produce livid spots or a universal dingy, bluish, or dark appearance of the skin. Nitrate of silver is a very common cause. When administered for several weeks, it frequently produces a deep tawny and uniform discoloration, approaching to a black, being deepest in the parts most exposed to the light. Sometimes, however, discoloration from this drug appears in patches, and sometimes one half of the body is affected.

The blue disease is generally owing to some malconformation of the heart, the most common of which is a communication between the two ventricles, thus rendering the decarbonization of the blood imperfect, and giving rise to the venous or carbonaceous discoloration. Nitrate of silver has also produced a bluish tinge of the whole skin, closely resembling cyanosis.

Treatment.—Most of these affections are unimportant trifles, and many of them are unalterable for the better. Yellow skins, blotches, motley appearances, etc., when induced by a diseased liver, can be often cured by restoring the functional action of this organ. When the skin is discolored by drugs, a persevering employment of the wet-sheet, with a course of free water-drinking and plain vegetable diet, will do all that can be done in the way of medication, although it will seldom wholly remove the difficulty. The blue disease is incurable; its subjects are feeble and short-lived; and all that can be done to prolong existence is found in plain, quiet, simple habits of life.

Morbid Sweat.—*Profuse perspiration*, when not a symptom of some acute disease, is an evidence of debility, and requires no attention, save a course of tonic bathing and regimen. *Bloody sweat*, though regarded as an idiopathic disease by some authors, is usually a vicarious affection, as in mis-menstruation, or the result of vehement emotion, violent exertion, or intense agony. *Partial sweats* are, I believe, always symptomatic. *Colored sweats*, which may be green, blue, black, or yellow, arise from obstruction of the liver or kidneys, or from
itic impregnation. *Scented sweat* may be ra
d, sulphurous or musky, saline, aromatic, et

of these varieties depend on the dietetic habits of the individual, in connection with the amount of bathing practiced. Some persons, who never or but seldom bathe, and eat strong food, are exceedingly disagreeable to the olfactory nerves of others. Many persons who exercise much on foot, wear flannel stockings, and bathe rarely, have a horribly offensive scent, which becomes intolerable on exposing the feet to the fire. I once had a patient who exhaled from the axillæ a strong musky, or rather blue-dye odor, for which he could assign no probable cause. *Sandy sweat*, known by a reddish sandy material concreting on the surface, indicates great deficiency in the functional action of the kidneys, or great excess in the saline and earthy matter taken into the system with the ingesta. The proper treatment, I trust, is sufficiently obvious in all these cases without further remark.

Morbid Hair—Trichiasis.—Even the hairs of our heads may become deranged by our physiological transgressions, although, next to the bones, they are the most indestructible of our bodily constituents. The *bristly* or *porcupine hair*, is usually regarded as an effect of gross nutriment connected with general habits more congenial with *perfect animal* than *progressive human* nature. *Matted hair—plica polonica*—the hairs becoming vascularly thickened, inextricably entangled, and matted together by a glutinous secretion—is supposed to result from covering the head too closely, as with a thick woolen bonnet or leather cap, with little or no attention to combing, washing, or in any way cleansing the head. *Extraneous hair—trichosis*—is most commonly noticed in bearded women, and has been imputed to excessive menstruation, the excessive use of pork, shell-fish, and other gross foods. *Forky hair*—the hairs of the scalp weak, slender, and splitting at their extremities—is a common complaint, depending for its immediate cause on defective nutrition in the bulb or root. *Gray hair*, when not "frosted by age," may be produced by fright, terror, grief, excessive brain labor, violent fevers, etc. *Baldness* may result from the same causes as gray hairs, and is often the consequence of skin diseases. It is far more common in males than in females—which fact seems to corroborate the physiological notion which some have advanced, that the common practice of cutting the hair and shaving the beard is a source of bodily infirmity. *Aerated hair*—patches of bald spots in the scalp or beard—is probably owing to some obscure skin disease or preternatural excitement of some portion of the brain. *Miscolored hair*—the hair changing to blue, black, green, or spotted—occasionally results from fevers, terror, heating the head, mineral and metallic vapors, etc. *Sensitive hair* is usually owing to cerebral excitement; and

this is usually owing to wounds or injuries of the head, and febrile or inflammatory affections. The hair, in some instances, is so acutely sensitive that the slightest touch, or the cutting of a single hair, gives exquisite pain.

Treatment.—Cutting the hair short, and frequently bathing the whole head in cold water, is the general restorative process in these deviations from health—some of which, however, are not curable. In cases of excessive sensibility or tenderness, tepid or moderately warm water should be employed. In the plica polonica, the hair should be cut very close, the scalp frequently washed with tepid water, and derivative hip and foot-baths directed. And in all cases the general regimen must be physiologically regulated, and such bathing appliances brought in requisition as the general health and particular circumstances indicate.

CHAPTER XXI.

POISONS.

So general is the employment of substances for chemical, mechanical, and *medicinal* purposes, which are poisonous to the living organism, whether taken into the stomach or applied to the skin; and so numerous are the emergencies wherein relief must be either immediate or impossible, that a work of this kind would be sadly defective without a brief consideration of this branch of pathology and therapeutics.

Toxicologists have usually classified poisons according to the kingdoms from whence they are derived, as *mineral*, *vegetable*, and *animal*. Some have arranged them according to their *action* on the animal economy, and others have merely distinguished them into *general* and *local*. Christison, who has written the most elaborate work on this subject, divides them into *irritants*, *narcotics*, and *narcotic-acrids*. The first embraces all poisons whose principal symptoms are those of irritation or inflammation; the second produce stupor, delirium, spasms, paralysis, etc.; and the third, as the term implies, produce either or both sets of symptoms, according to the dose and other circumstances.

But what are poisons? This is a problem not yet settled among medical men. In its broadest sense, the term must comprehend every thing foreign to the natural constituents of the human body, and even these constituents themselves, when *their* constituent elements are in

unnatural relations or proportions; every thing, in a word, which is not properly food, drink, or atmosphere. This latitude of definition will include the whole materia medica of our allopathic friends; and in truth, almost every poison known is an integral part of that materia medica. Established usage has, however, restricted the idea of *poison* to the sudden, prominent, and immediately-dangerous effects of these articles, while their equally morbid yet more slow, gradual, and remote consequences are called *diseases*.

Were I to attempt—what no toxicologist has yet accomplished—a *satisfactory* and philosophical arrangement of poisons, I should base it on the allopathic materia medica, as *tonic* poisons, *stimulant* poisons, *emetic*, *cathartic*, *diaphoretic*, *expectorant*, *vermifuge*, and *escharotic* poisons, etc.; but whether such a classification would be *pathological* or *therapeutical*, is a question I am willing to submit to "future generations." In the present chapter, the effects of *large* or *poisonous* doses will be chiefly considered, and *small* or *medicinal* doses only incidentally alluded to.

Acids.—The *nitric*, *sulphuric*, *muriatic*, or *hydrochloric*, *phophoric*, *oxalic*, and *acetic* acids, are corrosive poisons; and whether taken internally or applied externally, produce redness, inflammation, vesication, and ulceration.

Symptoms.—When swallowed, a burning sensation in the throat, excruciating pain in the stomach, and gaseous eructations are usually the immediate effects. When taken in extremely large doses, the sensibility may be so suddenly destroyed that the pain will be deceitfully slight. All the symptoms are most severe when the poison acts upon an empty stomach.

Treatment.—All alkalescent matters are chemically antidotes; there is, however, a choice, for the reason that some alkalies are themselves extremely corrosive. Chalk and magnesia are the best. A solution of nard soap answers very well. Slaked lime, or carbonate or supercarbonate of soda may be given; and in the absence of all these, a remedy may be found in the common plaster of an ordinary room, which may be beat down in a moment and made into a thin paste with water. The patient should drink as much water as he can swallow conveniently. The stomach-pump is not necessary.

Alkalies.—*Caustic potash*, *saleratus*, *quick-lime*, *salt of tartar*, *pearlash*, *soda*, *sal ammoniac*, *carbonate of ammonia*, or *smelling salts*, and *spirits of ammonia*, or *hartshorn*, are the usual alkalies from which accidental poisoning results.

Symptoms.—These do not differ essentially from those produced by the strong acids.

Treatment.—Of course, all acids are antidotal. Vinegar, lemon-juice, or any of the stronger acids, largely diluted, may be given. In the absence of acids, any of the fixed oils, as olive or almond, by converting the alkali into a soap, will neutralize its corrosive effects. In other respects, the treatment is the same as for acid poisons. The resulting inflammation, *in all cases* of poisoning, is to be treated precisely like inflammation from other causes.

NEUTRAL SALTS.—The most virulent of the preparations commonly known as neutral salts is *nitrate of potash—saltpetre, nitre, sal-prunelle.* In the apothecary-shops mistakes are often made, by which this article is put up for sulphate of soda, sulphate of potash, and other saline laxatives, so that the patient gets poisoned. It produces stinging pains in the stomach, and the usual symptoms of a violent cholera, with coldness, debility, and great exhaustion of the nervous system. Other neutral salts in common use, as Glauber and Epsom, are not dangerous except in excessive doses; the symptoms then are drastic purging and great debility.

Treatment.—We have no direct antidotes in the cases before us, and our duty is chiefly to combat inflammation. When nitre has been swallowed, warm water must be freely taken, and the stomach-pump employed if practicable. Wet bandages to the whole abdomen are called for, and the warm-pack is often serviceable. The effects of the other neutral salts are to be counteracted by cool or cold injections, and warm hip-baths.

MERCURY—HYDRARGYRUM.—Tho most actively-poisonous of the salts and oxides of mercury in common use, are *calomel, turpeth mineral, corrosive sublimate, red precipitate, cinnabar, vermillion,* and *cyanuret.* Of these, red precipitate and vermillion are most frequently tho agents of accidental poisoning; while calomel and corrosive sublimate are the common agents in medicinal and suicidal poisonings. It is a serious fact, among the "curiosities of medical literature," that the standard books recognize *fifty-one distinct diseases* resulting from the *medicinal* administration of the various preparations of mercury!

Symptoms.—When very large doses are taken, especially of the more powerful of the mercurials, there is violent pain in the stomach, intense thirst, vomiting, heat and fever. When corrosive sublimate has been given in large doses, or when small doses have been a long time

continued, there is a griping pain in the bowels, with a tendency to diarrhœa. When the system is slowly and gradually saturated with the poison, the effects are distinguished by the general term *salivation*, the symptoms of which are general fever, tremors, fœted breath, brassy taste, sore gums, loosened teeth, driveling at the mouth, swelled tongue, and often ulcerated bones. In some cases the tongue is enormously swollen, and protrudes hideously from the mouth, the poor poisoned patient being unable to articulate or swallow.

Treatment.—When a large dose of corrosive sublimate has been swallowed, albumen or gluten will decompose the salt and prove an effectual antidote. The albumen may be found in the white of eggs, and the gluten in wheaten flour. Either may be given freely; the white of eggs being previously beaten up with water or milk, and the flour may be administered in either water or milk. In the absence of either eggs or flour, milk is the next best antidote.

To cure salivation, and remove mercury and its effects from the system, require a persevering employment of the packing-sheet, which may be warm, tepid, or cold, according to the susceptibility of the patient, and so managed as to produce moderate but frequent perspiration.

When paints, ointments, etc., which contain some form of mercury, are accidentally swallowed, the patient should drink copiously of warm milk made into a very thin batter with wheaten flour, and, if the accident is soon discovered, the stomach-pump should be employed.

Arsenic—Arsenicum.—The arsenical preparations from which poisoning occasionally results are, the *protoxide*, or *fly-powder*; *arsenious acid* or *white arsenic*, commonly called *ratsbane*; *arsenite of copper* or *mineral green*; *arsenite of potass*, as in *Fowler's solution*; *arseniusetted-hydrogen gas*, which is evolved in various chemical operations; and several *sulphurets* of arsenic, as *realgar*, *orpiment*, and *king's yellow*.

Symptoms.—In a great majority of cases there is violent irritation and inflammation of the whole alimentary canal; a burning pain in the throat and stomach, which soon extends over the whole abdomen, with nausea, faintness, and extreme prostration of strength. In some cases, however, the pain is slight, the nausea and vomiting moderate, but the vital depression excessive and alarming, and often attended with convulsions, paralysis, insensibility or delirium. When arsenic has been given medicinally in small doses for some time, the first prominent symptom of its specific action on the system is a peculiar puffiness of the whole face, called in medical parlance *œdema arsenicalis*, and

attended with redness of the eyes, and followed by gripings, nausea, purgings, and a gradual sinking of the vital powers.

Treatment.—The stomach-pump should always be resorted to at once, if possible. If this is not at hand, the patient should drink copiously of warm water, and have the throat tickled with the finger or a feather to excite vomiting. We have no antidote, in the chemical sense, and medical books recommend a variety of diluent and demulcent liquids, to involve the poisonous matter and thus indirectly defend the coats of the stomach. Flour and water, and olive oil, are complete substitutes for the whole list. Some authors advise large quantities of the *hydrated sesquioxide of iron*; but its value is uncertain and far from being reliable.

To remove the subsequent inflammation and counteract the effects of the poison, Dr. Pereira tells us: "Our principal reliance must be on the usual antiphlogistic measures, particularly blood-letting, both general and local, and blisters to the abdomen. One drawback to the success of this treatment is the great depression of the vascular system, so that the patient *cannot support* large evacuations of blood"—the same as to say, the patient must be bled on theory, although it will kill him in practice.

Antimony—Antimonium.—Accidental poisonings with antimonial preparations are uncommon; but medicinal poisonings are extremely frequent. Death very often results from an over-dose of tartar emetic; and this deadly drug is extensively diffused among us, being a common ingredient in candies, lozenges, cough mixtures, drops, and syrups, etc. The popular preparations of the regular pharmacopœias, *James' powder*, and *Plummers' pill*, are strongly charged with this dangerous drug. Besides *tartar emetic*, the *oxide* or *sesquioxide* of the metal, called *flowers of antimony*, and the *chloride*, are sometimes the agents of accidental poisoning.

Symptoms.—Small doses produce scarcely any obvious effect save general debility. Large doses produce epigastric pain, vomiting, and often purging. In very large doses it occasions extreme muscular relaxation, nausea, depression, vital exhaustion, sometimes convulsions and death. Applied to the skin, tartar emetic produces an eruption of painful pustules resembling small-pox. Death has resulted from the absorption of the drug, when it has been applied to an abraded surface.

Treatment.—Our main reliance must be on the warm water emetic, in the early stage, and the usual "antiphlogistic" water-treatment in the later stages. Persons who are severely poisoned with any form of antimony are always cold, torpid, sensitive, and debilitated, so that

our bathing appliances must bo gentle and of moderate temperature. The warm-bath is excellent to check excessive evacuations when a large dose of the drug has been taken. Medical books recommend astringents, as tea, nutgall, cinchona, etc., on the supposition that tannic acid is antidotal to tartar emetic. But tho numerous experiments which havo been tried do not establish its claim to this title.

Lead—Plumbum.—All the preparations of this metal, except the sulphurets, are energetic poisons. The *acetate—sugar of lead—saccharum saturni*, is the form in which it is usually given internally as a remedy. The preparations from which accidental poisonings chiefly result are, *litharge—the protoxide of lead; red lead—the red oxide*, or *deutoxide; white lead—carbonate of lead;* and *Goulard's extract*—the *diacetate*. Milk, molasses, and even pure water, may acquire a poisonous property by standing in leaden vessels. Red earthen-ware ought never to be used for cooking fruit or pastry, on account of its lead glazing; indeed all colored crockery ought to be "ruled out" on account of its metallic coloring matter.

Symptoms.—Small doses check the secretions generally, and constipate the bowels. Large doses constringe the circulating vessels, reduce the pulse, diminish the temperature of the body, produce dryness of the mouth and throat, and a general wasting of the body. In most cases of lead poisoning there is a narrow leaden-blue line bordering the edges of the gums, attached to the necks of two or more teeth of either jaw; the saliva is often bluish. The extreme effects are *lead-colic*. Excessive doses produce more or less gastro-enteritis.

Treatment.—The warm water emetic must be given in the first instance, and the stomach-pump employed if practicable. The soluble alkaline or earthy sulphates, or the alkaline carbonates, will lessen the injurious effects of the preparations of lead, by changing them to sulphates. For this purpose phosphate of soda, alum, Glauber or Epsom salts are appropriate. These chemicals are unnecessary when the vomiting has been thorough or the stomach-pump introduced. The treatment for lead-colic has already been given.

Copper—Cuprum.—The salts of copper have been much employed in the manufacture of culinary vessels, and to color candies, sweetmeats, and preserves, from which frequent poisonings have resulted. The preparations in common use are *mineral green*—the *hydrated oxide; blue vitriol*—the *sulphate; natural verdigris*—the *carbonate;* and *artificial verdigris*—the *mixed acetates*.

Symptoms.—These are quite various. In small doses they are

manifested by cramps, paralysis, discolorations of the skin, slow fever, wasting of the body, chronic inflammation of the stomach and lungs, etc. In large doses, nausea, vomiting, coppery taste, eructations, griping pains, and giddiness result. Very large doses produce convulsions and insensibility, with the usual symptoms of gastro-enteric inflammation.

Treatment.—Wheaten flour, milk, and the white of eggs, are here our antidotes again. Vinegar has been a popular prescription, but it is actually injurious.

Bismuth—Bismuthum.—There are two preparations of this metal in common use; the first is the *trisnitrate*, which is extensively used in medicine, and known by the various names of *oxide of bismuth*, *subnitrate of bismuth*, and *magistery of bismuth;* the second is the *tartrate* of the metal, and is extensively used in the cosmetic art under the name of *pearl white.* They are both caustic poisons.

Symptoms.—Small doses diminish the sensibility, but large ones cause pain, vomiting, giddiness, gastric disorder, cramps in the extremities, etc. The cosmetic preparation has produced spasmodic trembling of the muscles of the face, terminating in paralysis.

Treatment.—We have no chemical antidote, and must rely on warm water, the stomach-pump, etc.

Tin—Stannum.—The *chlorides* of tin, used in color-making and dyeing, and the *oxide*, which forms a part of the putty-powder for glass staining and silver plating, are the preparations of this metal which sometimes, though rarely, occasion poisoning. *Powdered tin* has been given in ounce doses to expel the tape-worm. The *symptoms* of tin poisoning are similar, and the *treatment* the same as in the case of the preparations of bismuth.

It ought to be known to housekeepers that acid, fatty, saline, and even albuminous substances, may occasion colic, vomiting, etc., after having remained for some time in tin vessels.

Silver—Argentum.—*Nitrate of silver—lunar caustic*—though a powerfully corrosive poison, is extensively prescribed internally as a *nervine*, *tonic*, and *astringent* medicine. The *chloride*, *oxide*, and *cyanide*, are other preparations of the metal occasionally misapplied to the human stomach.

Symptoms.—Applied to the skin, hair, or nails, nitrate of silver stains them black; to an ulcerous surface it produces a white film; and to a mucous membrane, smarting, pain, and inflammation, which lasts

several hours. Taken into the stomach in small quantities, it produces no sensible inconvenience for some time; but if large doses are given, or the small ones long continued, heartburn, nausea, and vomiting result, and sometimes inflammation and mortification, especially when it has been taken *medicinally* for six months or longer. Its absorption into the system produces a blueness, slate color, or bronze hue of the skin, which is very difficult to remove. In some cases the whole body, internally and externally, has been *blue-dyed* by the medicinal operation of this drug. The discoloration results from a chemical combination of the salt with the organic tissues.

Treatment.—When the drug has been recently taken into the stomach, common table salt will decompose it and render it comparatively inert. When the body has been pretty well saturated with it, a long course of hydropathic bathing and dieting will be necessary, even to get rid of its effects partially.

Gold—Aurum.—The morbific and medicinal effects of the preparations of the *rex metallorum*, as the alchemists termed gold, are similar to those of the mercurials, though they are generally more sudden and violent. Gold has been administered in the state of minute division—*pulvis auri*—and in the forms of *iodide*, *cyanide*, and various *chlorides*. A preparation, called *fulminating gold*—*aurate of ammonia*—has been experimented with considerably; and writers on materia medica tell us with sufficient *coolness*, that "it has produced very serious and even fatal results."

Treatment.—The antidotes are albumen, flour and milk, as in the cases of corrosive sublimate and the preparations of copper.

Iron—Ferrum.—A very strange and general delusion pervades the medical profession respecting the medicinal virtues of this metal. Some chemists have detected, or imagined they have detected, a little of it in human blood; and, making a spring-board of this fact, have *jumped* to the conclusion that iron was a great remedy for a great many diseases. Even our "botanic," "eclectic," and "physopathic" co-reformers, who are so justly horrified at the idea of mercurial and antimonial poisoning, very freely mingle chalybeate waters and ferruginous salts and oxides in the preparation of their purifying syrups, alterative mixtures, and tonic powders. If it be true that iron is in some form a natural constituent of the human body, it does not by any means follow that the preparations of the metal which are found in the pharmacopœias are natural remedies, or remedies in any sense; nor does it follow that because phosphate and carbonate of lime are found in the

bones, that common chalk, mason's mortar, or plaster of Paris are natural foods!

As iron was the first mineral introduced into medicine, the history—all we have on the subject—of its introduction may not be uninteresting: "Melampus, a shepherd, supposed to possess supernatural powers, being applied to by Iphicles, son of Philacus, for a remedy against impotence, slaughtered two bulls, the intestines of which he cut to pieces, in order to attract birds to an augury. Among the animals which came to the feast was a vulture, from whom Melampus pretended to learn that his patient, when a boy, had stuck a knife, wet with the blood of some rams, into a consecrated chestnut-tree, and the bark had subsequently enveloped it. The vulture also indicated the remedy, namely, to procure the knife, scrape off the rust, and drink it in wine for the space of ten days, by which time Iphicles would be lusty, and capable of begetting children. The advice thus given by Melampus is said to have been followed by the young prince with the most perfect success!"

Iron is employed medicinally in the forms of *filings*; *black oxide*, or *ethiops martial*; *sesquioxide*—the *red oxide*, *peroxide*, or *crocus martis*, various preparations of which are known as *carbonate of iron*, *vitrioli*, *brown-red*, *rouge*, etc.; *hydrated sesquioxide*; *ammonio-chloride*; *iodide*; *sulphuret*, or *common iron pyrites*; *ferro-sesquicyanide*, or *Prussian* or *Berlin blue*; *ferro-cyanide of potassium*, or *Prussiate of potash*; *sulphate—green vitriol—sal martis—copperas*; *ferro-tartrate of potash*; *acetate*; *persulphate*; *pernitrate*; *ferro-tartrate of ammonia*; *lactate*, and *citrate*.

Symptoms.—The effects of the different preparations are exceedingly various, both in quality and degree. A few of them are violently irritating; but the majority are among the slow and insidious poisons. Small doses generally constringe and harden the fibres, constipate the bowels, and blacken the stools, and even reduce the size and harden the structures of various glandular viscera, as the liver and spleen. Like nitrate of silver, they form compounds with the organic tissues. They increase for awhile the frequency and force of the pulse, augment the temperature of the body, and heighten the color of the cheeks: effects indicative of fever and irritation, but which are usually regarded as remedial. Unfortunately the general and preternatural excitement is, ere long, followed by corresponding sinking and depression. The sulphate and chlorate of iron, in large quantities, produce great heat, weight, pain and uneasiness in the stomach, with nausea, vomiting, and sometimes purging and hemorrhages.

Treatment.—We have no chemical antidotes except the alkalies,

chalk, magnesia, etc., when the sesquichloride has been swallowed. This is usually obtained at the apothecary shop, in the form and under the name of *muriated tincture of iron*. Against all the other preparations we must trust to warm-water vomiting, the stomach-pump, and the usual means for counteracting inflammation.

ZINC—ZINCUM.—The compounds of zinc are analogous to those of copper in their action on the system, though somewhat less violent. The preparations in common use are the *oxide—flowers* of zinc; *impure oxide*, or *tutty*; *chloride—muriate*, or *butter of zinc*; *sulphate*, or *white vitriol*; *acetate*; *carbonate*, or *calamine*; and *cyanide*. The treatment is the same as in cases of copper poisoning

MANGANESE—MANGANESIUM.—The *binoxide* of this metal has been sometimes used in medicine. It is employed by potters to color earthen-ware; by glass-makers to destroy the brown color produced by iron, and to give an amethystine tint to plate glass; and by bleachers to produce chlorine. It has also been used as a depilatory. Its effects on the human system are more severe than those of iron, but less injurious than lead, and they are to be counteracted like those of the preceding poisons.

IODINE—IODINUM.—This is an intense and acrid irritant. In large doses or small doses long continued, it causes a burning pain in the stomach, a colliquative and exhausting diarrhea, with a rapid emaciation of the whole body, and extreme prostration of the whole system. Its destructive action seems to be particularly determined to the glandular structures. In some cases the male testes, and in others the female breasts, have been nearly absorbed and entirely destroyed by its medicinal employment. Its principal preparations are the *hydriodate of potassa*, which is extensively used in preparations called "sarsaparilla," and is a frequent cause of paralytic limbs and weak joints; and various combinations with sulphur and mercury, which are violently corrosive. Unfortunately we are without antidotes once more, and must trust to the principles of treatment already explained.

PHOSPHORUS.—This article is in less repute for medicinal purposes at the present day than it was some fifty years ago. It is a powerful irritant, and its acid is corrosive. The antidotes are demulcents and alkalies—albumen, gluten, milk, magnesia, etc.

SULPHUR.—Various forms of this article are familiarly known as

brimstone, flower of sulphur, roll or *cane sulphur, balsam of sulphur, milk of sulphur*, etc. Their action on the animal economy is weak in small doses, producing chiefly those effects which are called laxative and diaphoretic. Its principal celebrity in medicine has been obtained from its success in curing the itch.

Very large doses of sulphur sometimes produce severe griping and purging, with great debility, the treatment for which is the same as for an ordinary diarrhea.

Chrome—Chromium.—The *chromate of potass*, and some other salts of this metal, are extensively employed in dyeing. When taken into the stomach, they produce the usual vomiting, griping, and purging effects of other mineral poisons; but they are peculiarly liable to be followed by a degree of debility and paralysis wholly disproportioned to the irritant effects. The treatment should be the same as for lead poisoning.

Bromine—Brominum.—This substance has been employed medicinally as a substitute for iodine, to which its operation is similar; and when poisoning results from it, the treatment is the same.

Alum—Alumen.—Taken internally, alum corrugates the fibres, diminishes the secretions, creates dryness and thirst; and when large quantities are swallowed, nausea, vomiting, griping, and purging succeed. The remedies are, warm water and the stomach-pump.

Platina—Platinum.—Some preparations of this metal, as the *bichloride* and *chloroplatinate of sodium*, have been used in medicine and the arts. Their action on the human system resembles that of the preparations of gold; and their antidotes are the same.

Barytes—Barium.—The *carbonate*, *chloride*, and *nitrate* of this metal produce effects on the human system hardly distinguishable from those of arsenic. The chloride has been administered in scrofulous cases. The antidotes are alum, and the sulphates of magnesia, lime, and soda, which form an insoluble salt or sulphate of baryta.

Metallic Salts and Oxides.—There are many preparations of metals which it would be tedious to enumerate, which are irritant and corrosive poisons of greater or less intensity; their effects are analogous to those of arsenic, copper, and lead, and in all cases of poisoning from them, our main reliance must be on vomiting and the stomach-pump; the albumen of eggs and gluten of wheat are always harmless,

and in some cases might be serviceable; hence it would be at least prudent to employ them in all cases as auxiliaries. Among the most dangerous may be named the *oxide of osmium* and *hydrochlorate of palladium*, which are nearly as active as arsenic; the *hydrochlorates of rhodium* and *iridium* are rather less violent; the salts of *molybdenum* are comparatively feeble; *uranium* and *cobalt* are more active; *tungstein*, *cadmium*, *nickel*, *cerium*, and *titanium*, in their various preparations, are among the weakest of the metallic poisons.

NARCOTICS.—These may be medicinally and toxicologically divided into the pure, stimulant, and acrid. The *pure narcotics* produce stupor, insensibility, nervous prostration, paralysis, convulsions, etc., *directly*, and without previous excitement, as *Prussic acid*, *henbane*, *belladona*, *strammonium*, *conium*, *cicuta*, *ergot*, *narcotine*, *lettuce*, *pink*, *cherry laurel*. The *stimulant narcotics* produce at first more or less nervine excitement or exhilaration, with an increased action of the circulating system, followed by torpor, depression, debility, stupor, and all the symptoms of ultimate narcosis. To this division belong *opium* and and its various preparations of *morphine*, *meconic acid*, *codeïa*, *laudanum*, *paregoric*, *black drop*, *Godfrey's cordial*, and *wine of opium*; *alcohol* in all its forms of intoxicating *malted*, *fermented*, or *distilled liquors*; *tobacco*, *camphor*, *cocculus indicus*, *nux vomica*, *St. Ignatius' bean*, etc. The *acrid narcotics* produce violent irritation and inflammation in the stomach and bowels, followed by stupor, delirium, prostration, etc. Among them may be named as prominent, *mezereon*, *squills*, *serpentaria*, *cantharides*, *elaterium*, *colchicum*, *gamboge*, *jalap*, *scammony*, *colocynth*, *celandine*, *croton oil*, *bryony*, *savin*, *spurge laurel*, *aconite*, *bitter almonds*, *arnica*, *arum*, *rhus*, *cowhage*, *anemone*, *marsh-marigold*, *daffodil*, *fools' parsley*, *seeds of the castor-oil tree*, *bitter-sweet*, *five-finger root*, *black*, *white*, and *green hellebore*, *meadow saffron*, *rue*, *ipecacuanha*, *yew*, *darnel-grass*, *creasote*, etc.

Treatment.—All cases of narcotic poisoning demand the stomach-pump or warm water emetic, or both, in the first instance; the ulterior symptoms will be those of inflammation, partial apoplexy, or complete asphyxia, denoted by tremors, stupor, or insensibility, coma, delirium, convulsions, partial paralysis, etc. In this stage the treatment is nearly the same as for apoplexy. The extremities must be kept warm with hot bottles, gentle but persevering friction applied to the surface, and the cold pouring-bath applied to the head; this last is indeed the most important part of the treatment. Inflammatory symptoms are to be treated on general principles. When an exhausting diarrhea attends, as from colchicum or elaterium, the cold bandage and hot fomenta-

tious may be necessary, and may alternate with advantage, and small quantities of very cold water are to be frequently thrown up the rectum.

Acrids.—There are many aromatic and pungent vegetable substances not usually regarded as poisonous, but which, when taken in large quantities, produce severe irritation, and even fatal inflammation of the stomach and bowels. Of this class are the *essential oils*, as *peppermint*, *spearmint*, *cloves*, *cinnamon*, and *capsicum*; various *balsams*, as *Tolu*, *copavia*, *Canada*, and *Peru*; many condiments, as *pepper*, *mustard*, *horse-radish*, *cloves*, and *nutmegs*; to which may be added *turpentine*, *oil of tar*, *cubebs*, and two or three hundred medicines belonging to the classes of *cathartics*, *diurctics*, *diaphoretics*, *vermifuges*, *emmenagogues*, etc. The action of these articles on the system, or rather, the resistance of the vital powers to their action, is not accompanied with the indications of nervous prostration or exhaustion peculiar to the narcotics proper; hence our treatment is limited to soothing irritation and combating inflammation, premising, however, that the offending material is in all cases to be got rid of by emesis, catharsis, etc., as speedily as possible.

Mushrooms.—The *fly agaric*, *pepper agaric*, *deadly agaric*, *bulbous agaric*, and *champignon*, are the kinds of mushrooms from which poisoning most frequently results. They produce nausea, heat, and pain in the stomach and bowels, thirst, vomiting, griping, and purging; in severe cases, convulsions and faintings are frequent, with small and frequent pulse, delirium, dilated pupil, and stupor, followed by cold sweats and death.

Treatment.—Here again the *scientific* treatment of the books is eminently calculated to make a very bad matter very much worse: "emetics of tartar emetic, followed by large doses of Glauber or Epsom salts." As these drugs have no antidotal property in the chemical sense, and as their employment is powerfully debilitating, they are as injudicious a selection for puking or purging purposes as it is possible to make. Warm water and the stomach-pump, with copious tepid injections, are our more rational practice.

Poisonous Fish.—The kinds of "sea-food" from which poisoning most frequently happens, are, the *crawfish*, *mussel*, *old-wife*, *yellow-billed sprat*, *land-crab*, *gray-snapper*, *dolphin*, *hyne*, *conger-eel*, *blue-parrot fish*, *smooth-bottle fish*, *grooper*, *rock-fish*, *barracuda*, *king-fish*, *Spanish mackerel*, *porgee*, *bonetta*, *blower*, *tunny*, etc. The symp-

toms of poisoning usually appear in an hour or two after eating them, but sometimes in a few minutes after the meal is finished; a weight at the stomach is at first felt, with slight vertigo or headache; these are followed by a sense of heat about the head and eyes, great thirst, and an eruption of the skin resembling urticaria, or nettle-rash.

Treatment.—This has already been given under the head of *erythema.*

Serpents and Insects.—Those serpents and insects whose bites or stings are poisonous, are, the *copper-head*, *moccasin*, *viper*, *black viper*, *water viper*, *rattlesnake*, *Spanish* or *blistering fly*, *potato fly*, *tarantula*, *scorpion*, *hornet*, *wasp*, *bee*, *gnat*, and *gad-fly*. All the symptoms are those of violent internal and external erythematic inflammation, and the treatment may be found also under that head.

PART VII.

SURGERY.

Definitions.—Surgery is either medical, mechanical, or operative. According to the old school system, *medical* surgery comprehends the internal administration of drug-remedies, and the external application of lotions, liniments, poultices, plasters, etc. In the hydropathic system medical surgery is limited to the internal and external employment of water of every temperature, from steam to ice, as the indication is to induce relaxation or excite contraction; the internal administration of chemical antidotes or correctives in cases of poisoning, and the local application of astringents, caustics, and emollients, for the purposes of constringing bleeding vessels, removing preternatural formations, or destroying infectious matter, and protecting abraded or ulcerated surfaces from atmospheric and thermal influences. *Mechanical* sugery is applied to the replacement of displaced parts. *Operative* surgery contemplates the removal of mechanical or chemical obstructions, and morbid structures.

CHAPTER I.

SURGICAL APPLIANCES.

It has been said that a good workman requires but few tools; a good doctor needs but few medicines, and a good surgeon requires but a very small part of the multitudinous instrumental machinery which the inventive genius and manufacturing interest of the age has brought into use.

The common *pocket-case* of instruments, with tooth-forceps, ligatures, lint, adhesive plaster, sponge, bandages, male and female cathe-

ters, the stomach-pump, and the pump-syringe, are all that emergencies demand to be kept always in readiness.

The necessary mechanical, medical, and chemical appliances—rejecting all internal drug-medicines—are, the compress, ligature, spongo, adhesive plaster, lints and pledgets, dry-cupping, bandages, splints, caustics, sutures, torsion, the tourniquet, refrigeration, fomentations, emetics, anæsthesia, hæmastasis, and transfusion.

THE COMPRESS.—This is employed to equalize pressure under a roller or bandage, or increase the pressure at a particular point. It is made of several folds of linen, formed into a kind of pad; various shapes and thicknesses of compresses are employed, to suit the particular locality and circumstances. For applying around a sore, the *perforated* compress is constructed with a hole in the centre to permit the escape of matter. In Water-Cure parlance a *wet cloth* is often called a compress; but in the strictly surgical sense, a compress is connected with the idea of *compression*.

THE LIGATURE.—Various kinds of *strings* or *ligatures* are employed to arrest the bleeding from wounded or divided blood-vessels, check the venous circulation so as to retard or prevent the absorption of poison, as in the case of bites of venomous animals, remove tumors, etc. Silk, linen, and animal membrane—cat-gut—are the materials in use. The latter is preferable, especially for tying bleeding arteries or veins, as both ends may be cut off close to the wound, and the rest left to decomposition and absorption. In applying the ligature to wounded vessels, the *surgeon's knot*—the first knot having *two turns*—must be tied, as this prevents the first knot from slipping while the second is being tied. The bleeding vessel should be gently raised with the forceps or tenaculum, and the ligature drawn as tightly as may be without cutting through the coats of the vessel. Silver wire is sometimes used in ligating polypus and other tumors.

THE SPONGE.—For surgical purposes the finest and softest article is the best. It is used to absorb the blood and other fluids from wounds and ulcers, and to support temporarily prolapsed parts, as the uterus.

ADHESIVE PLASTER.—This is employed to retain divided parts in proximity; to afford mechanical support to relaxed and distended vessels, as varicose veins; to excite absorption by compression, as in indolent ulcers, and protect abraded surfaces. In dressing wounds, it is applied in narrow strips, with interspaces for the discharge of matter. For

small cuts or abrasions, the *collodion* is the most convenient article, and for very small wounds or sores the gummed-silk or *court-plaster* is sufficient. Where adhesive plaster is to be applied, the hair should be shaved off.

Tents and Pledgets.—These are conical or cylindrical masses of *charpic*, or prepared lint—best made by scraping the fine nap from old linen—or sponge, some sizes and forms of which are called *meshes*, *rolls*, and *pledgets*. They are employed to keep up a discharge from a fistulous or sinuous ulcer, so as to secure granulation from the bottom of the sore; to introduce caustics and irritants; to absorb matter, etc *Tampons* are large tents, for making pressure or applying distention to arrest hemorrhage. The sponge-tent is the most convenient when absorption is desired; the common puff-ball, or silk pocket handkerchief, are frequently employed in uterino hemorrhages.

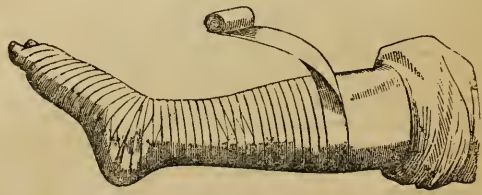
Dry-Cupping.—The application of any convenient vessel, as a common tumbler, to the surface, in which a piece of cotton is burned to produce a vacuum, is employed to diminish the circulation in the adjacent vessels, and to abstract the irritation of an inflamed part, on the principle of counter-irritation. This process is preferable to local bleeding—wet-cupping—and generally produces momentary relief of pain. But I regard it as hardly worth retaining for such purposes, for the reason that cold applications to the part, with warm, if need be, at a remote part, is a better resource in nearly if not quite all local inflammations. Dry-cupping is a valuable resource in reducing inguinal and femoral hernia.

Bandages.—The most common use of bandages is to maintain the fragments or parts of broken bones in juxtaposition during the healing or *knitting* process; to give support to parts after recent dislocations; to promote circulation, and prevent accumulation in chronic swellings of the lower extremities, as in œdema, varices, old, deep, indolent ulcers, etc. The best are made of firm, smooth, unbleached linen cloth, torn into narrow strips, and sewed together by overlapping the ends so as to avoid a seam. The bandage must always be smoothly and evenly applied, and great care must be exercised to avoid drawing it tighter above, or toward the heart, than below, as congestion and swelling will result from obstructing the circulation.

Figure 190 shows the manner of applying the *roller* to the lower extremity. It is about two and a half inches wide; and, commencing at the extremity of the great toe, takes in the second toe at the second

turn, the third toe at the third turn, and so on; compresses are placed in the depressions around the ankle so as to preserve equal pressure.

Fig. 190.



APPLICATION OF THE ROLLER.

each layer overlaps the preceding two thirds or more of its width, and the whole is applied smoothly from the toes to the knee. Just above the ankle, where the limb is tapering, it has to be folded over itself, and its direction frequently changed to preserve its evenness of application.

Splints.—These are employed in cases of fractures, and sometimes to correct deformities. They are made of thin pine or poplar, cedar or basswood boards; or better still, by saturating woolen cloth with gum shellac. They must, of course, be shaped to the part to which they are intended to be applied, and padded with lint, cotton, or lined with soft sheepskin or buckskin.

Caustics.—The red-hot iron, called the *actual cautery*, is sometimes resorted to for the destruction of morbid parts; but more commonly some chemical substance, called the *potential cautery*, is employed. *Caustic potash—potassa fusa*—is in general use as a *strong*, and the *sesqui-carbonate of potash* as a *mild* caustic. *Nitrate of silver—lunar caustic—nitric acid*, and *sulphate of zinc*, are frequently employed. Preparations of *antimony*, *arsenic*, and *mercury*, are favorite escharatics and caustics with allopathic practitioners, but they have already done mischief enough to entitle them to future oblivion. Mild caustics will generally remove callous or fungous growths without destroying the healthy structure; and the strong is necessary when the healthy parts are so involved with the disease that some portion of sound structure must be sacrificed to get rid of the morbid. Fortunately this necessity is of rare occurrence.

SUTURES.—*Stitching* divided parts together is much less practiced now than formerly—superior skill in the management of bandages and adhesive straps having superseded, in a great measure, its necessity. Sutures are mostly employed to restrain the mobility of parts, and prevent permanent contraction of the muscles, in situations where straps and bandages cannot be well applied. The curved needle should always be passed from within the wound outward, and take up but little more than the skin. The *twisted* suture is employed for the double purpose of adaptation and compression. After the needle or pin has transfixed the lips of the wound, the thread is applied in successive coils round under the point and head, as in fig. 191. The *interrupted suture* is made by passing the threaded needle through the edges of the wound, at short distances, and then removing the needle and tying the thread. In the *dry suture* the needle is passed through strong bands of adhesive plaster, which are placed above and below the wound.

Fig. 191.

TWISTED SUTURE.

TORSION.—This process merely consists in getting hold of the extremity of the bleeding vessels with a pair of forceps, and *twisting* them. It stops the bleeding of small arteries, and is so far a substitute for tying.

Fig. 192.

THE TOURNIQUET.

THE TOURNIQUET.—This instrument is a form of ligature, and is calculated to compress large and deep-seated arteries in amputations and other exigencies. The *pad* or *compress* is applied directly upon the artery above the injury or operation, and pressed upon the vesse until tho pulsation of tho artery beyond is suppressed, by turning the screw. A

good substitute for the common tourniquet may be made in a moment in various ways. A handkerchief, tied twice around the limb, may be twisted with a stick until the pressure stops the current of blood in the artery against which the knot is applied, as in fig. 193.

Fig. 193.

HANDKERCHIEF LIGATURE.

Congelation.—In deep-seated chronic inflammations, especially around the joints, *absolutely freezing* the part, by means of pounded ice or refrigerating mixtures, has been attended with the happiest consequences; the application should never be continued but for a few minutes at a time. It is also one of the means for restraining hemorrhage. Severe cold has been employed to remove the sensibility, preparatory to surgical operations; and the testimony is unanimous that, in every instance "the wound has appeared to heal more speedily than under the usual circumstances." Dr. Arnott has used frigorific mixtures as anæsthetic agents in nearly two hundred cases without any injurious consequences; and he reports that foul ulcers are often changed to healthy ones by their action. A piece of ice dipped in salt, and applied to the part, produces congelation in about half a minute. Pieces of ice mixed with common salt and nitrate of ammonia, make a still stronger frigorific. It should never be applied to a very large surface at once.

Fomentations.—These are intended to abate morbid sensibility, and relax the whole or part of the muscular system, to overcome spasms, and facilitate the replacement of luxated joints, fractured bones, ruptures, etc. All the muscular relaxation which *regular* surgeons endeavor to produce by profuse bleedings and deathly nauseants, can be readily and harmlessly produced by the internal and external use of warm water.

Emetics.—In many cases of rigid muscular contraction, to facilitate the reduction of a dislocation or the replacement of the fragments of fractured bones, powerful and injurious doses of tobacco or tartar emetic are administered to induce greater relaxation; or the patient is kept for a long time in a state of excessive nausea. Warm water, taken copiously into the stomach, assisted by tickling the throat occa-

sionally, will answer all the purposes for which so many deathful drugs are employed, especially if conjoined with external fomentations or the warm-bath.

Anæsthesia.—Chloroform and ether are just now in common use to produce insensibility, and thus obviate the pain attending surgical operations; and many surgeon accouchers administer chloroform to lessen or obviate the pain in nearly all cases of parturition. They are not without danger, and the introduction of these agents into ordinary obstetric practice is to be reprobated. When an operation is exceedingly dangerous, painful, or protracted, the employment of anæsthetic agents is certainly commendable; and, although we have accounts of some thirty deaths occurring from their direct effects since their introduction into surgical practice, yet I suspect that some of those deaths at least, were attributable to a want of the proper precautions, or rather an ignorance of the proper precautions on the part of the operator. The same rules should be observed in administering chloroform or ether, as are enjoined by hydropaths in administering a full-bath. The stomach should be empty; the patient in his ordinarily quiet or composed state; that is, without rush of blood to the head, or determination to the brain; the extremities must be warm, and a general glow upon the surface, etc. The ether is the safer article, but the chloroform is the most powerful. In many cases magnetism will produce the desired insensibility, and when the patient is susceptible, this process is always to be preferred.

Hæmastasis.—This process has been employed in the treatment of local congestion and inflammation; but we have, in water of various temperatures, an ample and a better resource. It is a valuable expedient, however, in some cases of sudden and alarming hemorrhage, as it enables us to retain a greater proportion of blood within the body, and also to lessen its impetus at the bleeding point, thereby favoring the formation of a clot or coagulum. Dry-cupping an entire limb, for which purpose elongated cylinders of flexible material have been invented, is one method of holding back its blood. The common ligature round the limb is equally efficacious.

Transfusion.—In some cases of excessive loss of blood, life has been preserved by opening the vein of a healthy person, or of a sheep, and transferring the blood immediately into the vein of the bleeding patient, a suitable vessel or funnel being connected with the latter for the purpose of receiving it.

CHAPTER II.

WOUNDS.

Distinctions of Wounds.—The usual division of wounds is into incised, punctured, penetrating, contused, lacerated, gunshot, and poisoned. An *incised* wound is a simple *cut*, made, of course, by a sharp-edged instrument, as a knife, razor, axe. A *punctured* wound is made by a sharp-pointed instrument, as a needle, awl. A *penetrating* wound is a larger puncture, as by a bayonet. A *contused* wound is occasioned by a blunt instrument, as a stone, club, which injures the parts below the surface, the skin remaining entire. A *lacerated* wound is inflicted by an instrument which is both blunt and rough, and which tears the integument as well as injures the parts beneath it. *Gunshot* wounds include all injuries accruing from substances impelled by the explosive force of gunpowder, as leaden bullets, cannon balls, stones, etc. They partake of the character of both punctured and lacerated wounds. *Poisoned* wounds are the injuries inflicted by insects, reptiles, rabid dogs, etc., whose stings or bites are accompanied with the introduction of a specific virus.

General Consequences of Wounds.—*Bleeding* is the only alarming symptom in incised wounds, which can generally be healed by the "first intention," that is, without suppurating. All the other varieties are attended, save when very large arteries are torn, with but little hemorrhage, but always *suppurate* more or less. In gunshot wounds, the *concussion* of the air impelled by the ball often inflicts severe injury, without making any mark upon the skin. In most wounds there is more or less *extravasation*, or an infiltration of blood into the cellular membrane. The *pain* is generally in the inverse ratio to the danger, for the reason that the more destructive the injury, the less power has nature to give the alarm. The danger of wounds, other circumstances being equal, depends on the actual health, or physiological state of the system at the time the wound is received. The most trivial scratch, or the simplest cut, has been followed by bad sores, loss of limb, and even life, in persons of extremely morbid blood, foul secretions, and reduced vitality; while those of sound, pure bodies, recover from the most complicated injuries with comparatively little dif-

ficulty. Spirit-drinkers and beer-bibbers are notoriously liable to extreme inflammation, foul ulcers, mortification, etc., from injuries which water-drinkers might regard as trifles.

Treatment of Wounds.—The first point, in all cases, is to control the hemorrhage. *Arterial* bleeding, which is always far the most dangerous, may be known by the bright scarlet color of the blood, and its issuing in jets. It may be stated as a general rule, probably an invariable one, that all hemorrhage from blood-vessels below the wrist and ankle, can be arrested without ligating the arteries. The injured part should be freely exposed to the cold air, and washed in the coldest water. In many cases the bleeding from small vessels is kept up by the dressings—covering the wound with compresses, lint, etc., which keep up the heat, and prevent the formation of a coagulum. I have known a deep wound in the thigh, made by a piece of glass, bleed for several days in spite of lint, and sutures, and bandages, and cease entirely on being laid open with a scalpel with a view of tying the wounded artery, which, by the way, was not found. In some cases the wounded artery can be compressed by the finger, as the radial artery in fig. 194. If the pressure must necessarily be kept up a long time, a piece of soft rag several times folded may be placed over the aperture, and secured by a piece of broad tape, bandage, or pocket handkerchief, as in fig. 195. When internal bleeding occurs, known by paleness, faintness, etc., sips of the coldest water or bits of ice should be frequently swallowed, and absolute quiet enjoined. Bleeding from large arteries must be controlled by the tourniquet, and the artery ligated. When the bleeding is from the upper extremity, the brachial artery must be compressed above the middle of the arm; and if from the lower, the femoral artery should be compressed just below Poupart's ligament.

Fig. 194.

COMPRESSING THE RADIAL ARTERY.

Fig. 195.

THE COMMON COMPRESS.

The *congestion* and *inflammation* which may attend all wounds merely require frequent changes of the water-dressings; and when the inflammation of a wound has extended to the neighboring glands, producing painful

swellings, these should be kept well covered with several thicknesses of wet cloths.

The lodgment of foreign substances in wounds is to be ascertained by introducing the finger or a probe, and extracted if possible; not, however, until all danger from hemorrhage is past; and when poisonous substances are imbedded in the flesh, warm water or neutralizing solutions should be frequently injected.

In *suppurating* wounds the edges must be kept apart, to allow free egress to all matter that may form within; and if the granulations, in the healing process, arise above the surface, and become loose and flabby, constituting *fungous* or *proud flesh*, straps of adhesive plaster or collodion should be applied to act as a compress. In bad cases caustic potash may be necessary.

Secondary hemorrhage is liable to occur in lacerated wounds from the sloughing of large arteries; and in bad cases, *gangrene*. They require the coldest water-dressings. The moderate douche is excellent in contused wounds; and when they become irritable and painful the part may be bathed in warm water, followed by the cold compress. The absorption of extravasated blood may be promoted by the cold streams and cold wet compress.

The general treatment of poisoned wounds has been detailed in the preceding part of this work.

CHAPTER III.

INJURIES.

Concussion.—A *stunning*, or *concussion of the brain*, is the result of blows upon the head, or of falls, which so shock the whole system as to occasion a temporary suspension of consciousness. The extent of the injury cannot be known, nor is it material that it should be until the patient "comes to." It may be so severe as to produce instantaneous death; or so slight as to leave no apparent ill consequences.

Treatment.—Perfect quiet, and a careful attention to keep up the general circulation and normal temperature, are the principal remedial resources. The extremities must be kept warm, cold cloths should be laid over the head, and if the concussion is prolonged, the bowels may need evacuating by means of injections, and the urine require to be drawn off by the catheter.

The old practice of bleeding, which I am sorry to know is also a common practice with modern allopaths, has no better effect than to lessen the patient's chance of recovery. Indeed, this has been the opinion of some of the best European surgeons for the last fifty years, and a majority of all modern authorities is against the practice; besides, it is in itself at variance with common sense; yet our doctors continue the killing practice of letting blood as though there was some scientific reason for it!

Compression.—This is usually the result of concussion, and its immediate cause is an extravasation of blood within the cranium; or some collection of other matter; or mechanical pressure from a depressed or broken part of the skull bones. It is denoted by continued pain in the injured part of the brain, with cerebral disturbance; or, in the absence of these, frequent faintings, spasms, disordered vision or hearing, with nausea and vomiting. The patient is often also comatose.

Treatment.—When a portion of the cranium is depressed it must be raised by a lever; or if this is impracticable, the operation of trephining will become necessary. The head should in all cases be kept thoroughly cooled with wet cloths or the pouring-bath, and derivative treatment, especially tepid, hip, and foot-baths should be frequently employed, caution being taken to secure prompt reaction. In extreme cases, hot foot and leg-baths are useful, especially when the patient is affected with delirium or coma. In young persons very bad fractures of the cranial bones will often replace themselves if the general health is well attended to.

Bruises.—These are only worth naming for the purpose of mentioning that the cold douche, and the wet compress, are worth more than all the stimulating liniments and embrocations in the world, in their treatment.

Strains.—These accidents usually happen to the smaller joints, as the wrist, fingers, ankle, and toes; they are generally exquisitely painful, and are very liable to be followed by painful and protracted inflammation. The part should be held in cold water, or the cold stream applied to it until the violence of the pain abates, and then wrapped in wet compresses until all inflammatory excitement is passed.

Burns and Scalds.—Burns are produced by the action of concentrated heat upon the living tissue. *Scalds* are produced by the application of a boiling or hot fluid. The danger of these injuries is usually

measured by the extent of surface destroyed. Authors make three, four, five, and sometimes six degrees of burns; but the smallest number is sufficient for all practical purposes. The first is *rubefaction*, or *redness;* the second, *vesication*, or *blistering;* and the third, *disorganization*, in which the skin is destroyed, and perhaps some structures beneath the skin. The pain is usually the severest in the second variety. Superficial burns or scalds are easily healed when not maltreated; but deep burns, as by a hot iron, usually leave an ugly scar. Many terrible burns are frequently taking place by the clothes of women, children, and servants taking fire from carelessness in handling camphene, burning fluid, tea-kettles, coffee-pots, etc.

Treatment.—When one's clothing is on fire, the first thing to be done is to extinguish the flame; and as the sufferer might burn to death before a supply of water could be obtained, the flame should be suffocated by covering the patient with a blanket, carpet, or some similar

Fig. 196.

article, as represented in fig. 196. The next point of treatment is to immerse the injured part in water, or cover it with wet cloths of the temperature which feels most agreeable to the patient. The coldest water will prove the most soothing at first; and in a longer or shorter time, according to the severity of the inflammation, tepid water will be found most sedative; and finally warm water will often feel the best. But the rule is invariable: follow the sensations of the patient. When the skin is vesicated, it should be kept covered with soft linen. The blisters which form should not be punctured or torn until suppuration has taken place on the surface, as they form the best protection to the injured surface.

As the contact of the atmosphere, or rather of a colder medium, is excessively painful to the raw surface after the skin or cuticle comes off, the room should be kept quite warm, and all applications should

then be moderately warm. The best covering in this condition is simple flour, dredged over the surface, allowed to remain until it becomes loose by the purulent matter beneath, then removed, the surface gently washed with warm water, and more flour applied. A soft cloth may be placed over the flour and kept continually wet with water; and the flour-dressing may be continued until cicatrization is completed. I have seen very bad burns heal rapidly and admirably under this management: starch, and finely-pulverized slippery elm bark—elm flour—are favorite applications with some practitioners, but I know not that they have any advantage over the common flour.

There is always a considerable degree of constitutional disturbance after a severe burn, as rigors, oppressed respiration, small, weak pulse, followed by more or less febrile reaction. This requires warm hip and foot-baths, when practicable, during the period of chilliness, and tepid ablutions during the febrile stage; the room should always be kept considerably warmer than in cases of the same violence of fever from any other cause.

The allopathic treatment of burns and scalds is a singular jumble of the "good, bad, and indifferent." Professor Parker, of this city, after telling us that "the treatment of scalds and burns seems to us to be eminently empirical in all our systematic works on surgery," gives us a *rational* basis of treatment. This is "the use of such agents as are calculated to meet the existing debility." "The most prominent of the local and constitutional symptoms is great *nervous prostration*." On this basis the professor recommends *warm brandy* and *tincture of opium* to get up reaction; and then *antimony*, *Dover's powder*, *calomel*, and *ipecacuanha*, to get the reaction down again; or, in his language, "regulate the reaction, that it may not run too high." "General bleeding," he continues, "is commonly indicated by the great tendency in such cases to a typhoid condition of the system." Bleeding indicated because the nervous system is *prostrated*, and the whole system in a *sinking* condition! Is not this pre-eminently empirical?

Among the *sequelæ* of burns and scalds, are contractions of the skin and adhesions around the tendons, producing distortions and deformities. These must be prevented, as far as possible, by maintaining the normal position of the parts during the healing process. Dr. Parker remarks: "When these scalds and burns are upon the trunk, and there has been a copious suppuration, unless we are guarded in our treatment, as cicatrization takes place and the secretion is diminishing, there will occur suddenly and unexpectedly, effusion upon the brain or lungs, and death." The way to "guard" against such disastrous results is, by avoiding the drugging and bleeding part of the treatment.

Particular Wounds and Injuries.—*Venesection—phlebotomy*—is a wound made by puncturing a blood-vessel with the point of a lancet, a ligature having been previously applied between the contemplated wound and the heart. Some one of the veins of the inner side of the fore-arm, near the elbow, is usually selected; but occasionally the external jugular vein, the veins of the foot, and the temporal artery are opened. The consequences of this operation are, 1. Loss of blood, which is irremediable. 2. *Ecchymosis*—a livid, hard tumor, occasioned by an extravasation of blood into the cellular membrane, in consequence of the wound in the vein not exactly corresponding with that in the skin; it requires the cold douche and cold compresses. 3. *Aneurism*—an arterial swelling, produced by pricking through the vein into the adjacent artery, or missing the vein with the point of the lancet and hitting the artery; this requires the operation of ligating the artery above the injury. 4. *Lock-jaw*—produced by pricking or dividing some nerve in the vicinity of the *venesected vein*; it requires the treatment heretofore mentioned under the head of Spasmodic Diseases. 5. *Phlebitis*—inflammation of the veins of the wounded part, of which the operation is the exciting cause; this requires the wet-sheet pack, with wet cloths to the inflamed part. 6. *Fainting*—which results from the abstraction of a large quantity of blood, or from a less quantity suddenly withdrawn by making a large orifice; the treatment has been described under the head of Syncope.

Leeching and scarifying are among the common injuries which modern surgeons are fond of inflicting upon afflicted humanity. The usual morbid consequences are, inflammation of the skin and adjacent blood-vessels—*erythema* and *phlebitis*—dangerous *hemorrhages*, and unseemly *scars*. For all these "accidents," the coldest water is the best remedy.

Wounds of the throat, of which throat-cutting is the most prominent example, present many degrees of severity and danger, from a mere incision through the integument, to a division of the jugular veins, windpipe, and carotid arteries. The principal danger is from hemorrhage; and all the vessels which bleed freely, whether arteries or veins, must be taken up and tied; after which the lips of the wound are to be retained together with both sutures and adhesive straps.

Wounds of the scalp are liable to be followed by erysipelatous inflammation; the hair must be shorn, and the divided parts brought in proximity by adhesive straps, and sutures when necessary.

Wounds of the chest are apt to penetrate the substance of the lungs, in which case air and blood together will bubble out of the wound, and the patient will manifest short breath and bloody expectoration

The wound should be covered with a plaster, and cooling derivative baths—half and hip—employed.

Dr. Hill, author of an excellent surgical work (*Eclectic Surgery*), makes the following pertinent remarks in relation to the bleeding practice in this case. "*Venesection* is recommended in the books 'to divert,' as they say, 'the blood from the lungs.' But surely it is as well to bleed to death through a wound in the chest as through one in the arm! We are told that the bleeding 'can hardly be carried too far; for if the patient be not relieved by this measure, *no other can possibly save him.*' (Gibson, vol. i., p. 19.) The reason given for bleeding, in such cases, is as absurd as the process itself."

Wounds of the abdomen are among the most dangerous. When the intestines are wounded, the patient is affected with nausea and vomiting, and the matters ejected or dejected will be bloody. When a portion of intestine protrudes, it must be replaced as soon as possible; if this is not done within forty-eight hours, adhesions may form and render it impossible. When the protruded bowel is distended with gases or fæces, by which its return is hindered, these may be pressed forward into a portion of intestine within the abdominal cavity; or, if this measure fails, the wound must be dilated. These wounds, when large, may require the suture; a fine needle and thread only should be used. For several days after severe injuries of the bowels or lungs, the patient should eat little or nothing, and the bowels be moved, when necessary, by warm injections.

Wounds of the joints are liable to be followed by severe inflammation, terminating in adhesions and *anchylosis*, or stiff-joint. The limb should be kept in the easiest possible position, perfect quiet observed, and cold-water dressings be assiduously applied. The modern disease, called in some late books *synovitis*, is a chronic inflammation of the synovial membrane, and to some extent of other structures of the joint, and is produced by some external injury. I have seen several cases affecting the knee-joint, produced, most unquestionably, by wearing strapped pantaloons. *Synovitis* is known by a sense of weakness or lameness in the affected joint, always increased by any considerable motion, and frequently amounting to pain when the exercise is prolonged. There is usually none, or but slight, external redness, swelling, or heat. This affection requires a long time to cure; the remedial plan consists of a very strict dietetic regimen, one or two general baths daily, with the constant application of local compresses, and occasional *shallow* foot-baths. When the knee-joint is the seat of the disease, the cold leg-bath should be employed for half an hour once or twice a day

CHAPTER IV

TUMORS.

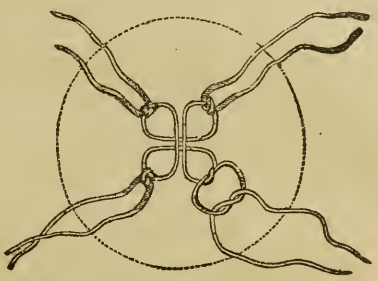
Every tumor is a morbid swelling or a new formation—an increased or perverted development of organic substance. The common causes are injuries, as pressure, blows, bruises, etc., although it is seldom that we can trace any particular tumor to the particular accident from which it originated. They may also arise from capillary obstruction, and this is induced by many of the unhealthful eating, drinking, and anti-bathing habits of society. A mechanical injury of the vessels of a part, or a long-continued inflammation or obstruction, may produce a change in its nutritive function, by which an abnormal structure is developed; and when once this perverted action commences, it may progress to an indefinite period or extent. In their incipient stages they can frequently be removed by strong douches, cold compresses, and continued compression. Tumors are distinguished into *adipose*, *cellular*, *fibrous*, *cartilaginous*, *osseous*, *encysted*, *fungous*, *indurated*, *scrofulous*, *malignant*, *pulsating*, *vascular*, etc., according to the structure affected, and the form, character, and consistence of the swelling.

The older surgeons divided tumors into *sarcomatous* or *fleshy*—comprehending those which are composed of fatty, fibrous, medullary, fungous, or other substances softer than bone; *osseous* or *bony*; *osteo-sarcomatous*—when involving both the bony and fleshy structures; and *encysted*—containing a fatty or fluid substance within a globular cyst, as in the case of *wens* and *hydatids*.

Adipose tumors are collections of *fatty* matter inclosed in a cyst or sac of condensed cellular membrane, which renders them also *encysted* tumors. When filled with a suet-like matter, they are called *steatomous*; when containing a honey-like substance, *melicerous*; and when their contents are a pap-like fluid, *atheromatous* They are not painful, and only inconvenience the patient by their bulk, weight, or pressure. They are easily removed by making a T incision through the skin, and carefully dissecting around them to detach the cysts from the surrounding structures. They may be removed by the "eight-tailed ligature," fig. 197, two needles being drawn through the under side of the tumor, touching each other at right angles, and each carrying a double ligature; the loops are then cut, and the ends tied in four knots, by which the tumor is completely strangulated. These tumors do not reappear after having been entirely removed.

Fibrous tumors are composed of capsules of greater or less density, inclosing yellow or whitish substances divided into lobes or septa by cellular substance; their shape is irregular, and they have a doughy consistence. They are not painful, and are easily removed by the ligature or knife, being almost always situated in accessible places. The fibrinous contents of these tumors adhere so loosely to their capsules that they can readily be removed by the finger or forceps on making an incision through the skin.

Fig. 497.



LIGATURE FOR TUMORS

Cellular tumors are smooth, firm, and composed of compacted layers of areolar tissue, containing, in thin cells, albuminous, fibrinous, and sebaceous matter. They are never painful except when inflamed. The cutaneous veins involved in the tumors may become varicose, and when abrasion occurs, sloughing and fungous growths are apt to follow. Excision with the knife is the best treatment; but when sloughing takes place the mild caustic is necessary; and the strong caustic when fungous appearances present.

Vascular tumors are limited, in surgical technology, to those morbid developments of erectile tissue called *nævi materni*, or *aneurism by anastomosis;* and these may be *superficial* or *subcutaneous*. The proper plan of treatment contemplates the destruction of the morbid congeries of blood-vessels in such a manner as to avoid hemorrhage. Repeatedly puncturing the part with hot needles, and the repeated applications of caustic, a small part of the surface only being touched at once, with constant but moderate compression, have each succeeded in removing them.

The character of the other varieties is sufficiently indicated by their name, and the treatment will be given under the head of particular tumors.

WHELK—IONTHUS.—This affection is a stationary, tubercular, unsuppurative tumor, generally found upon the face. It comprises the varieties called *stone pock*, and *carbuncled face*, or *rosy drop—gutta*

rosea. Stone pock is a pimply eruption of hard, red tumors, which are sore to the touch, and ooze a little fluid at the tip, or a grub-like concretion of mucus. In the carbuncular variety the tumors are confluent, and mottled with purple, often disfiguring the nose with pendulous lobes, and marring the face, as Shakspeare has it, with "bubukles, and whelks, and knobs, and flames of fire." In Ireland, the common name for these protuberances is *grog-blossoms;* in this country they are known as *rum-blossoms*, *grog-roses*, *cider-buds*, *beer-berries*, etc., while their possessors are honored with the appellation of *copper-noses*, *bottle-noses*, etc.

Special Causes.—Grease-eating and "hard drinking."

Treatment.—Few invalids, distinguished by the carbuncular variety of the whelky tumor, can be expected to submit to *water*-treatment; and, moreover, these patients have the same reason to regard their "roses" and "blossoms" as badges of honorable distinction, that the Englishman has his gouty toes and stomach, or the Polynesian Islander his enormously misshapen leg. All alike can boast of "*high living.*" But if we *should* be called upon to indicate a remedy, we might with all propriety suggest the details of a "sober and temperate life."

Sycosis.—This term has been applied to a fig-shaped tumor, a fungous ulcer, and a horny excrescence about the eyelids; but usually and here it is employed to denote an eruption of inflamed tubercles on the scalp, and on the bearded portion of the face. These tumors often ulcerate and discharge an ichorous or glutinous matter. They are connected with uncleanliness in either the positive or negative sense—*bad* diet or drink, or the *absence* of water, and may be cured by thorough local and general bathing.

Warts—Verrucæ.—These are rather excrescences than tumors; some are smooth and apparently filled with fatty matter; others, called *seed-warts*, are rough, hard, and insensible. Some warts secrete a fluid which is infectious, and will produce a crop on other persons or on other parts of the same person. They may be effectually removed by caustics—potassa, nitrate of silver, nitric acid, or nitro-muriatic acid. The latter preparation is the best; it may be applied by means of a pointed piece of wood to the centre, taking care not to let the acid come in contact with the surrounding structure. To prevent this, a piece of perforated adhesive or court-plaster may be placed around the wart. The acid may be repeated until the troublesome and unsightly excrescence is entirely destroyed, which will usually require but a few days.

Corns—Clavi.—These well-known toe-tormentors are produced by tight shoes or boots. The first principle of cure is to give the feet a respectable area of freedom; and the second is to soak them in warm water, and shave off the horny substance, and then touch them with the nitric or nitro-muriatic acid. When the corn is inflamed or highly irritable, the tepid foot-bath should be employed to remove this condition before the acid is applied. The *aqua regia*—nitro-muriatic acid—is the ordinary secret remedy of the "corn-curers." When the corn is fully formed, or ripe, a membrane separates it from the true skin, so that it can be taken off without injuring that surface; and this circumstance enables professional *chiropodists* to elevate the "grain" on the point of a pen-knife, after an application of the acid.

Bunion.—This affection, though generally regarded as a variety of corn, is really an inflammation and swelling of the bursa mucosa, at the inside of the ball of the great toe; it often produces a distortion of the metatarsal joint of the great toe, and is produced by the same causes as corns. The treatment is, warm foot-baths, when the part is very tender and irritable; at other times, frequent cold-baths; and when a horny substance resembling a corn appears externally, the application of caustic. I have known bad corns and bunions cease to be troublesome after the patient had been a few months under hydropathic treatment for other complaints.

Onyxis.—This distressing affection, sometimes known by the distressing synonym of *onychogryphosis*, consists in an incurvation of the toe nail from a bruise or the pressure of a tight shoe, producing inflammation and ulceration, and followed eventually by fungous growths, or proud flesh, which is exceedingly tender and painful. The cure is slow but certain. The foot must be frequently soaked in warm water until the soreness is so far abated that it can be handled without pain; then with a probe press pledgets of lint as firmly as can be borne under the most detached point of the toe nail, pressing them also between the nail and projecting portions of the flesh as far as possible. Cover these with the wet compress, and apply a moderately-tight bandage over the whole, frequently wetting the whole with warm, tepid, or cool water, as either temperature is most agreeable. The tents are to be pressed further and further under the nail from time to time, and the foot should be soaked and dressed once or twice daily. When portions of the nail become free they may be cut off, and mild caustics may be employed to remove fungous or indurated growths, which do not yield to the other measures of treatment.

Ganglions.—These are encysted tumors, formed of a viscid, albuminous fluid, resembling the white of an egg, and varying in size from a pea to that of an egg. They are hard, globular, and without discoloration of the skin. Sometimes the cyst is loose, but in most cases it communicates by a narrow foot-stalk, with the sheath of a tendon, or the synovial capsule of a neighboring articulation. Ganglions are always situated in the course of a tendon, and usually appear on the wrist, hand, and top of the foot. In their treatment surgeons have resorted to compression, percussion, discutient applications, extirpation, and caustics. When the tumor is prominent and round, a simple incision will allow its contents to escape, and if dressed with a moderately tight compress, the wound will heal readily. I have *always* removed them in this way, and *never* knew any injurious consequences to result from the operation. Oblong and diffused ganglions may be punctured with a lancet or couching needle, and the fluid pressed out. When the cyst is thin it may be ruptured by a blow or by pressing it firmly against the bone—in which event the fluid will be absorbed and a cure result; but whether the sac can be ruptured with a safe degree of violence, can only be known by trial. Irritants or caustics, to excite suppuration, is a method recommended by some authors; it is applicable to cases attended with ulceration or induration.

Ranula.—This is a small tumor under the tongue, resulting from obstruction of some one or more of the excretory ducts of the submaxillary or sublingual glands. It may be cured by clipping off a small portion with a pair of sharp scissors; and, if it does not disappear in a few days, touch it with nitrate of silver or sesqui-carbonate of potash.

Epulis.—A small tubercle of the gums, which generally appears above or below the incisor teeth, sometimes becomes a serious malady. It commences with a small seed-like swelling, which grows so slowly and painlessly as to attract little notice; but at length it enlarges rapidly, becomes soft, bleeds on the slightest touch, fungous formations spread out, involving the gums displacing the teeth, and affecting the glands of the mouth and other soft parts, until the patient is destroyed by hemorrhage or worn out with irritation. The best surgeons recommend the removal of the tumor as soon as its character is ascertained. The adjoining teeth must be first extracted. Sir Astley Cooper prefers the knife; but the cauterizing process as recommended by Dr. Hill is, I think, far preferable; it consists in destroying the tumor to its base, with every portion of the diseased structure, by means of

caustic potash, applied until disorganization and sloughing take place—the surrounding parts, lips, tongue, etc., being protected by cotton wet in vinegar, rolled up and pressed in around the portion to be cauterized.

In all cases of malignant tumors and ulcers, let me here say once for all, a rigidly abstemious and exclusively vegetable diet is one of the most important, and frequently one of the indispensable measures of the remedial course.

Bronchocele.—This tumor, commonly called *goitre*, or *swelled neck*, is a preternatural enlargement or hypertrophy of the thyroid gland. In its early stage it is soft and elastic; but as it advances in size it becomes firmer, and spreads toward the sides of the neck, attaining sometimes a prodigious magnitude. In the valleys of Switzerland, Savoy, the Tyrol, Derbyshire, and some other places, it is very prevalent; most frequently, however, affecting young females. It is found in all parts of the United States, but more commonly in low, moist, marshy, or malarious situations. In this country the disease seldom increases to a dangerous extent, the deformity being the principal source of uneasiness.

To treat this complaint successfully we must employ as powerful douches to the spine and to the tumor itself as the patient can conveniently bear, with occasional packings in the wet-sheet, and a thorough course of derivative half, hip and foot-baths; and to this course of bathing must be added a plain, abstemious, and rather dry diet. The drop-bath for half an hour or longer, followed by the wet compress, is among the promising remedial resources; and if there is the least tendency to constipation, tepid injections should be freely employed.

It is but a few years since *iodine* was the vaunted specific for this disease throughout the medical world; but it was found at length that a great many more constitutions were killed than bronchoceles were cured by the remedy; hence, like every other specific which ever has or ever will be got up on drug-medication principles, its destiny is—oblivion.

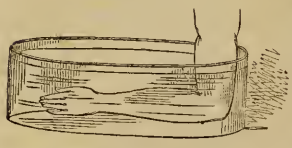
Paronychia—Whitlow—Felon.—An acutely painful inflammation, seated about the nails and ends of the fingers, has been called by these terms indiscriminately; the term paronychia is applied to all phlegmonous tumors of the fingers and toes. In some cases the inflammation commences in the periosteum, and effusion takes place between it and the bone, constituting the worst or malignant form—the *true felon;* in the *tendinous whitlow* the inflammation commences in the sheath of a tendon; and in a variety called *cutaneous*, the effusion

occurs in the subcutaneous areolar tissue, or between the skin and epidermis. Similar inflammations are sometimes found about the palms of the hands and soles of the feet.

The severe and lancinating pain of paronychial tumors arises from the firmness and inelasticity of the skin and other structures where it is seated, which act upon the inflamed vessels like a tight bandage, producing a most distressing sense of pressure; and hence it is that when the skin opens the soft parts below are pushed out like a fungus, and become exquisitely tender.

Treatment.—On its first appearance this affection may generally be promptly cured by immersing the whole arm in very cold water. The arm-bath, fig. 198, should be frequent and prolonged. When discoloration of the skin indicates approaching suppuration, tepid, or even warm water to the inflamed part, with the cold elbow-bath, will prove the most soothing treatment. In the *felonious* variety it will save the patient much time and suffering to cut with a scalpel down upon the bone, making a free incision one or two inches in length.

Fig. 198.



ARM-BATH IN WHITLOW.

Scirrhus and Cancer.—I have already treated of cancers medically, but as many surgeons regard scirrhus and cancerous tumors as distinct diseases, while others treat of scirrhus as though it were the first stage or beginning of a cancer, it may be proper to consider both subjects connectedly in this place.

It is unquestionably true that all cancers are in their incipient stage *hard, scirrhous, indurated* tumors—*occult cancers*—and in their latter stage, *open ulcers—carcinoma.* But it is equally true that indurated or scirrhus tumors often remain for an indefinite period in a condition of cartilaginous and almost stony hardness, without evincing any tendency to cancerous ulceration; and not unfrequently, when irritated or injured, degenerating into other malignant tumors, very different from true cancer. A scirrhus tumor, therefore, is not *per se* the proof of an approaching cancer. Indeed, some authors have grouped together *scirrhus, medullary sarcoma, fungus hæmatodes,* and *carcinoma,* as constituting *species* of the generic family of *cancer.* But it is enough for practical purposes, to know that a scirrhus tumor *may* become a cancer or some other malignant ulcer; and when the surface of the scirrhus is uneven to the touch, the skin leaden and wrinkled, with ir-

regularly dilated veins, and twinging, gnawing, or lancinating pains, the cancerous character is clear.

Diagnosis.—Non-canceroid scirrhus, and all hardened but non-malignant tumors, are never preceded by nor attended with pain of the gnawing or lancinating kind. They present, also, a smooth and more rounded surface, with a manifest swelling *in* instead of *out* of the part in which they are found; whereas, in canceroid scirrhus, the part affected is condensed and really diminished in bulk.

Treatment.—Scirrhus or hardened tumors resulting from inflammation may be dispersed by the plan of treatment recommended for bronchocele. But the canceroid tumor, in its early stage, may, perhaps, be treated with equal success by the knife or caustic; and in either case care must be taken to remove or destroy every vestige of discolored skin or affected flesh.

Open cancers can be and frequently are cured by a free application of caustic potash, although the operation is a painful one. Dr. Hill advises, in the *scirrhus stage*, the application of a pencil of potassa, so as to surround completely as well as to open the cancerous mass, letting it penetrate into the very center from several different points; and if the patient cannot bear so extensive an application at once, the caustic may be applied to different parts from day to day. Between the cauterizations the sore is to be covered with a poultice of slippery elm flour. In the open cancer the caustic potash is to be applied freely to the whole of the ulcerated surface; burning to the bottom of the tumor by striking the pencil in from different directions. When the eschar sloughs off, any remaining portion of the morbid growth should be touched with the caustic; and these applications are to be continued and repeated until all of the morbid structure is destroyed. During the healing process the sore is to be washed daily with the mild caustic—sesqui-carbonate of potash—to destroy the vitality of any remnant of cancerous virus that may exist, and prevent the development of new. The constant application also of flour, starch, or slippery elm, absorbs the pus, and thus prevents its corrosive effect. When this or any other operation is resolved upon, the body must be prepared by a thorough course of hydropathic bathing and dieting.

Fungus Hæmatodes.—This term means *bloody fungus;* the disease is sometimes called *medullary sarcoma*, *spongoid inflammation*, *encephaloid tumor*, and *soft cancer*. It commences with a small, elastic, movable, and nearly insensible tumor, *under* the skin, the integument itself being unaffected. Sooner or later it becomes inflammatory, swells rapidly, the skin becomes discolored with purplish or red spots

and adheres firmly to the distended and lobulated mass. Ulceration soon comes on; dark-colored fungous growths sprout out irregularly and at several points beyond the surface; the whole mass becomes exceedingly vascular, the top being much larger than the base; eventually the adjacent glands are affected, when the patient's general health rapidly declines.

Treatment.—When the lymphatic glands have become affected, the disease may be pronounced incurable. In its early stage, while the tumor is loose underneath the skin, and nearly free from active inflammation and tenderness on pressure, it may be destroyed by caustic or removed with the knife. The knife is preferable when the diseased mass is so situated that the whole can be removed at once. The excision should include every particle of morbid structure; and to make sure of this the dissection should extend some distance beyond all appearance of disease. When cauterization is resorted to it must be managed, as in the case of common cancer, except that it is more important to destroy, if possible, every vestige of the diseased mass by the first application.

Bone Cancer—Osteo-Sarcoma.—This disease, called *spina ventosa* by some authors, consists in the deposition of a flesh-like matter in the structure of the bone, producing a morbid enlargement. As the disease progresses, the internal structure is changed to a brownish, fleshy mass. When the swelling opens on the surface, large quantities of pus, of a more or less icherous or sanious character, are discharged. The affection is most frequently seen in the lower jaw bone. The early symptoms are, acute pain, followed by a hard elastic swelling, after which the pain becomes more dull, and eventually lancinating.

Treatment.—The first thing to do—except when a part or limb is so far destroyed as to require amputation or forbid any attempt to cure—is to cauterize an opening into the center of the diseased mass, so as to allow the free escape of purulent matter and loose pieces of bone; the limb or part is then to be kept well covered with wet compresses, and, when practicable, the cold stream or pouring-bath should be frequently applied; the cavity should be washed out once or twice a day with tepid water; and, if there are fungous growths appearing, a solution of the mild caustic should be applied daily, filling the cavity, after each application, with pledgets of lint.

Carbuncle—Anthrax.—This affection is sometimes called a malignant boil. It commences with a livid, red swelling, attended with a

burning, smarting pain, followed by vesication; the ulceration appears in the form of several fistulous openings, from which a thin, acrid fluid exudes, excoriating the adjacent surface. The disease always indicates a very depraved or debilitated state of constitution, and rarely occurs in any but aged persons. It is generally located in some part of the back or on some portion of the head.

Treatment.—The best management in the most malignant forms is, without doubt, the cauterization plan recommended for the preceding disease. There is much less pain attending the application of caustic in carbuncular than in cancerous or malignant fungous tumors. But the less virulent cases, wherein the fetor is moderate and the gangrenous tendency slight, may be cured by thorough packing, a rigid diet, and wet compresses.

Lupus—Noli-me-Tangere.—Lupus literally means "the wolf;" and noli-me-tangere, "don't touch me"—terms expressive of the rapacity and abhorrent nature of this excrescence. It is a malignant disease, usually about the nose and mouth, commencing as a small tumor, and progressing to a foul ulcer. Its first appearances are various, as a small dark sore, tubercle or vesicle, or a large, prominent wart. The lupus ulcer is known by a purple margin and depressed center, which exudes a tenacious pus, or an icherous matter; the exposed surface has a fiery red appearance, and the pain is of a pricking or smarting kind. When occurring near the eye, it will, if not arrested, destroy that organ, and may extend to the brain. The general health is not usually much affected.

Treatment.—In the early stage, when the disease appears in the shape of warty excrescences or tubercles, the knife or caustic may be employed indiscriminately. When it commences as a superficial, red, angry sore, the mild caustic will be sufficient. When it has extended over a large surface, or penetrated deeply, the strong caustic must be freely applied.

Aneurism.—An aneurismal tumor, in its strictest sense, is a preternatural dilatation of the coats of an artery, forming a pulsating swelling, which eventually ruptures and destroys the patient by hemorrhage. The term is also applied to enlargements of the cavities of the heart In the *true aneurism* the coats of the artery form the pouch or sac of the tumor; when the sac or covering is formed of effused lymph, into which the blood has escaped from the artery, it is called *false aneurism*; sometimes the blood is poured into the cellular membrane, constituting the *diffused aneurism*; and when the effused blood, in conse-

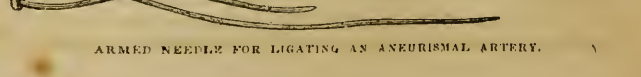
quence of a rupture of the internal and middle coats of an artery, makes itself a channel between these and the outer coat, it is called *dissecting aneurism*. *Aneurismal varix—varicose aneurism*—is a dilatation of a vein in consequence of a gush of blood from a neighboring artery, and is generally produced by "venesection." *Nævus* is a dilatation of the small arteries, producing a red, shining spot on the skin; when these vessels are larger, the affection is called *aneurism by anastomosis*.

Diagnosis.—Aneurism, when *external*, is known by a pulsating tumor, which beats synchronous with the artery where it occurs; it may be diminished or emptied of its contents by pressing on the affected artery above the tumor. *Internal* aneurisms, which occur in the heart or large vessels of the chest and abdomen, are extremely difficult to distinguish. Aneurisms of the heart are divided into *active* and *passive;* the former is really a *hypertrophy* or thickening of the parietes of the organ, by which its cavities are *diminished;* the latter is the true *cardiac aneurism*, attended with an enlargement of its cavities. The symptoms in all these cases are exceedingly obscure and variable, and are common to nervous and dyspeptic invalids, as well as the result of various tumors and visceral enlargements not connected with any structural lesions of the circulating system. The most prominent, however, are, a strong and constant beating or pulsatory motion above or below the sternum, *when the bowels are not constipated;* a dull, heaving, beating, or boring sensation about the spine; and a double beating, or some other uniformly irregular character of the pulse at the wrist.

Special Causes.—Injuries, blows, falls, violent exertions, mental excitements, and above all, obstructing, concentrated, and greasy food, which thickens the blood and increases the labor of the heart and arteries in propelling it.

Treatment.—In the early stage of aneurismal tumors, compression, when it can be managed by an experienced operator, is the best remedial resource. In other states and circumstances, the ligature is necessary. The most approved operation is that of tying the artery with a single ligature above the tumor. After dissecting down to the vessel affected, the blunt end of an aneurism needle, fig. 199, should be work-

Fig. 199.



ARMED NEEDLE FOR LIGATING AN ANEURISMAL ARTERY.

ed around the vessel to separate it from its accompanying vein or nerve; this may be done by pushing rather than cutting, to avoid wounding the the nerve or vein. The ligature is improper in false aneurisms of large extent, after the pulsation has ceased in the tumor, and when caries or gangrene exists in the vicinity of the disease. After the obliteration of the cavity of the diseased vessel, the anastomosing vessels in its vicinity will enlarge to maintain the necessary circulation.

In varicose aneurism the vessel must be tied both above and below the injury; this double ligation is necessary also in localities where there are numerous anastomosing branches, as on the dorsal surface of the hand and foot.

The constitutional treatment is of first importance in all cases of organic diseases of the blood-vessels.

The diet must be simple, bland, and opening; all violent exercises of body or mind strictly avoided, and all bathing appliances must be mild and gentle, so as to prevent any shock to the circulation.

Varix.—*Varices* or *varicose veins* are tortuous, knotty, elongated thickenings and dilatations of the coats of these vessels. Varicose enlargements are most frequently found in the lower extremities, the great saphenal vein and its branches being the affected vessels; the spermatic and hemorrhoidal veins are also very liable to become varicose. In many cases the valves of the veins are destroyed; the affected vessels are liable to inflammation; and the lower limb is particularly disposed to ulceration, which bleeds easily and heals with great difficulty. Varicose ulcers have existed twenty and thirty years, rendering the limb almost useless.

Treatment.—Compression with the common bandage or roller, when skillfully managed, will often cure varices of the lower extremities. Surgeons have experimented largely in several processes—cirsotomy or incision, extirpation, ligation, and cauterization—but with very poor success in all. A plan for obliterating the vessels by the combined action of caustic and compression has been successful in many cases. It consists in the application of caustic to one or two very small portions of the distended veins at a time, so as to produce ulceration and ultimate adhesion, the part being, meanwhile, dressed with adhesive plaster or the *wet* roller. As soon as one dilatation or knob is obliterated, the caustic may be applied to another, and so on. I regard this practice as perfectly safe provided due attention is paid to bathing and dieting.

White Swelling—Hydrarthrus.—This formidable disease com

monly affects the knee-joint. Authors make two varieties, *scrofulous* and *rheumatic*, as it appears in persons predisposed to, or afflicted with, either of those complaints.

Symptoms.—The swelling comes on very slowly, and is attended with little pain at first. Gradually the pain increases till it becomes intense, especially at night. The skin appears whiter than natural, becomes tense, shining, and marked with varicose veins, and there is a constant sensation of heat in the part. In this condition it may remain for years, but usually the swelling continues to increase until the soft parts become so hard as to appear like enlarged bone. As it progresses the tibia is thrown backward, the condyles of the femur project forward, the whole limb emaciates, anchylosis takes place while the joint is flexed, and matter collects, and is discharged at various sinuous openings. Extensive caries of the bone often ensues, with hectic fever, soon terminating in death.

Special Causes.—Repelled eruptions, local injury, mercurial and antimonial medicines, syphilitic taint.

Treatment.—This is one of the maladies which the popular "healing art" does not pretend to heal. When the joint is very painful, it should be bathed in warm water or fomented until this is relieved, and then dressed with several folds of wet cloth, except when the inflammation is acute, in which event cold applications are most appropriate, the rule being, as in all similar cases, to regard the sensation of the affected part. The cold pouring-bath, douche, or leg-bath, or even moderate congelation, may be employed with advantage when the sensibility of the part is such that they can be administered without pain. Indeed, in most cases they will each and all have a soothing and sedative influence. Callous edges of the ulcerated surfaces, sinuses, and fungous growths, will require the application of the mild or strong caustic. The limb should be kept as extended as possible, and as much compression employed during the suppurative stage as can be borne without pain. To these local measures must be added thorough constitutional treatment, in which the packing-sheet should be the leading process. The regimen must be such as has been heretefore recommended for scrofula.

Hydrops Articuli.—This is usually regarded as a result of rheumatic disease, and hence called *rheumatic white swelling*. It consists in a distention of the synovial membrane and capsular ligament by serous effusion, which renders the limb lame and stiff, though not very painful except from exercise. Sometimes the effusion extends along the tendons of the muscles. The warm or cold douche, wet bandages,

the pack-sheet, copious water-drinking, and frequent injections to keep the bowels entirely free, are the remedial measures.

Varicocele—Circocele—Spermatocele.—A varicose dilatation of the veins of the scrotum and spermatic cord, is called indiscriminately by these terms. When the spermatic veins are affected, the tumor is soft, knotty, doughy, unequal, and compressible, increasing from below upward. The disease requires no special attention, save a careful regard to hygienic habits; occasional sitz-baths, or the ascending douche, with the use of a suspensory bandage.

Hæmatocele.—This is an extravasation of blood in the tunica vaginalis, or an effusion into the cellular membrane of the scrotum. The external parts are often thick and dark, somewhat resembling gangrene. The treatment is the same as for the preceding affection. Sometimes the disease is produced by the wounding of some large vessel, in which case the scrotum may be laid open and the vessel tied.

Sarcocele.—This term is variously applied to a scirrhus or cancerous, encysted, or fibrous tumor of the testis, and to a simple enlargement as a consequence of maltreated chronic inflammation. When the tumor is malignant, castration is the only sure remedy; otherwise it may be reduced by the remedies recommended for the preceding maladies.

Hernia Humoralis.—This technic is applied to a swelled testicle from common inflammation, or to a hardened tumor which is at first confined to the epididymis, the pain extending along the cord to the loins. The latter variety is frequently the result of a suddenly-suppressed gonorrhœal discharge. The former variety requires *cold*, and the latter *warm* water-treatment at first, to be followed by cool, and finally cold applications.

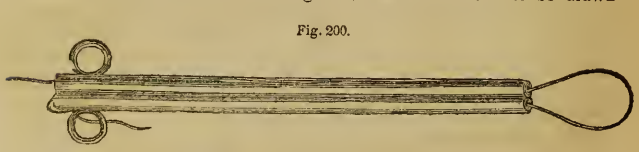
Cystic Sarcoma.—This is a hydatid disease of the testis. It occurs chiefly in middle life, and is sometimes mistaken for hydrocele; but the *oval* shape of the tumor will readily distinguish it from that affection which is *pyriform*. The morbid mass consists in part of a solid structure, and partly of cysts of various sizes, containing a thin, transparent, yellow serum, or a turbid fluid. The complaint had better be managed on the "let alone" system, unless its bulk or malignancy creates great inconvenience or suffering, in which case extirpation is the only remedy.

Polypi.—The most common situations for polypus tumors are the nose and vagina, although they may grow from any introverted mucous surface. For all practical purposes, it is sufficient to distinguish them into *soft* and *hard*, although surgical writers have made several subdivisions of each, as mucous, vesicular, fibrous, fleshy, scirrhus, or cancerous, etc. The latter variety is probably a true cancer, instead of a cancerous polypus.

Treatment.—In addition to what has been heretofore said in relation to the treatment of these morbid growths, it may be remarked, that the application of powdered caustic—either mild or strong, according to the firmness of the tumor—will frequently be sufficient to destroy them. In many cases the caustic may be advantageously combined with mechanical force, as squeezing, twisting, crushing, etc., tearing away such parts as may be conveniently detached. The powder should be applied with a camel's-hair pencil. This plan is particularly adapted to nasal polypi. The practitioner should also bear in mind that nasal polypi are very liable to grow again, after having been removed by mechanical means, unless the surface from which they are detached is thoroughly cauterized.

Polypi in the vagina, whether originating from its sides or from the mucous surface of the uterus, usually present a pedunculated shape, which is favorable to the operation of removal by ligature. I have known cases connected with such a degree of prolapsus as to allow the application of a ligature without any instrumental assistance; but generally the ligature will have to be introduced by means of the polypus forceps, or the *double canula*, fig. 200, after which it is to be drawn

Fig. 200.



DOUBLE CANULA, WITH LIGATURE.

tight enough to cut off the circulation and strangulate the tumor; the canula is to remain, and the ligature tightened from time to time, until the tumor comes away, which will usually be in five or six days. When the neck of the polypus cannot be reached by ligature, the tumor may be destroyed by a solution of the caustic potash, introduced through a silver catheter; or the powdered caustic may be applied by means of pieces of fine sponge, with threads attached to withdraw them.

Nodes.—A majority of bone tumors are included under the term *exostosis*, and the term *node* is usually restricted to hard concretions or incrustations which form around rheumatic and gouty joints. It is employed, however, by several writers, synonymously with exostosis; and many authors apply it to tumors of the cylindrical bones resulting from the venereal taint. It is the opinion of some surgical authors that syphilitic nodes only occur in persons who have taken mercury, which, by the way, has inflicted vastly more mischief on the human constitution than has the disease it is intended to cure.

Samuel Cooper says (*Cooper's Surgery*), "I believe that true nodes are rarely produced in syphilis, unless the patient has been using mercury." Dr. Hennen, who had an extensive experience in the treatment of syphilitic diseases, affirmed that he had never seen but two cases of nodes in patients who had not taken mercury; and in relation to those two cases the question may be fairly raised, Whether the patients had not taken mercury on some previous occasion.

Treatment.—This is mainly constitutional. Thorough general bathing, an abstemious diet, and local compresses, are the leading measures. When the tumor becomes projecting and pointed, the soft parts may be laid open, and the tumor removed with a saw, chisel, or trephine; when ulceration occurs, attended with callous edges or fungous excrescences, these require cauterization.

Enlargement of the Prostate Gland.—In this affection the gland often attains many times its ordinary size, and is much harder than natural. It produces but slight difficulty in urination, yet it prevents the bladder from being completely evacuated, and the urine is, in consequence, rendered constantly turbid. Total retention of urine, however, is liable to occur if the swelling is aggravated by any excesses to which the patient is addicted. There is a sense of weight in the perineum, and the middle lobe of the gland usually projects into the bladder, altering the shape and direction of the urethra, and rendering the passage of a catheter or sound more or less difficult. The disease is usually caused by calculous concretions or venereal affections.

Treatment.—Frequent hip-baths, and a thorough employment of the ascending douche are the ordinary local appliances; to which must be added some general daily bath, as the dripping-sheet, or pack and half-bath. When it is produced by repelling or suddenly drying up a gonorrheal discharge, warm hip and foot-baths must be assiduously employed until the discharge reappears or the irritation subsides; after which the cold treatment may be employed as above.

CHAPTER V

ULCERS.

Ulcers are purulent solutions of the continuity of the animal texture. In a general sense, they are distinguished into the *benign*, or *healthy*, and the *malignant*, the *indolent*, and the *irritable*, etc. They are also subdivided into many varieties, according to their causes, nature, tendencies, consequences, etc., as *simple*, *sinuous*, *fistulous*, *fungous*, *gangrenous*, *cancerous*, *scorbutic*, *syphilitic*, *scrofulous*, *inveterate*, *phagedenic*, *virulent*, *sordid*, *cacöethic*, *carious*, *varicose*, etc. Many tumors, if not arrested in their early stage, become ulcers, as cancer, carbuncle, etc.

An ulcer is called *healthy* when its purulent matter is a normal secretion, unattended with the destruction of the surrounding parts. Its surface is florid; its granulations are small and of uniform size; it is without offensive smell; and it heals regularly, leaving little or no scar. A common boil is an example.

An *irritable ulcer* is very tender to the touch; extremely liable to bleed; its discharge is slight, and of a thin, ichorous, or sanious appearance; its color is dark or purplish; its granulations are imperfect and spongy; its edges are ragged and everted; the parts around are red, swollen, and often œdematous.

The *indolent ulcer* is the more frequent form of "running sore" we meet with; its edges are inverted, rounded, thick, glossy, and regular; the granulations are of a dull pale aspect, and insensible; the pus is thick, of a dark yellow color, and adheres to the bottom of the ulcer. It is most frequently located on the lower extremities.

Varicose ulcers may be either irritable or indolent; they are connected with enlargements or varices of the adjacent veins. They are generally situate below the knee.

Fistulous ulcers are sinuous cavities, having a narrow outlet, the disease being kept up by an altered texture of the part.

Specific ulcers result from the inflammation of specific diseases, as scrofula, salivation, syphilis, etc. Other distinctions, depending on mere varying appearances, or on common causes and terminations, are of no practical importance.

General Treatment of Ulcers.—The constitutional treatment

is always of primary importance in chronic ulcerations of every kind. In all matters of regimen the patient must be held to a strict accountability to physiological law. The whole skin must have, at least, one thorough daily ablution or packing. The local medication will vary according to the character of the ulcer. The *healthy* ulcer needs nothing more than a cool wet cloth. When the *irritable* ulcer is very painful, the limb or surrounding part may be fomented with warm cloths until it becomes easy, and then "done up" with the ordinary "water-dressing." When exposure to the air aggravates the pain, the surface may be covered with flour. The *indolent* ulcer often requires the application of the mild caustic to remove fungous growths or callous edges. When the surrounding parts are hard, they should be occasionally fomented; and if the sore is on the lower extremity, compression with the roller or by adhesive straps is useful. *Varicose* ulcers require still stronger compression; the roller bandage should be applied to the whole limb, and the sore treated in other respects according to its character. When the veins are extremely distended and knotty, adhesive straps may be advantageously applied over and adjacent to the ulcer; and these may be covered by the roller. Cauterization of each distended vein with potassa fusa, one or two inches distant from the ulcer, so as to obliterate their cavities by adhesive inflammation, may be resorted to in bad cases with safety, and usually with success. *Fistulous* ulcers generally require to be opened with the ligature, or obliterated by caustic.

Furunculus.—A boil, or *bile*, as some authorities have it, is a small phlegmon, seated in the dermoid texture, and tending to a pointed tumor which sooner or later breaks and discharges a white or yellowish pus, mixed with blood. Sometimes a small fibrous mass of dead but undissolved areolar tissue appears, after it suppurates, called the *core*. The only medication demanded is the wet dressing; and, should the tumor not open spontaneously when matter has evidently formed, it should be punctured with a lancet and the matter pressed out.

Parulis.—The common gum-boil is a small abscess which frequently forms in the gums. It is sometimes owing to carious teeth, but is generally produced by bad dietetic habits. Those who eat *coarse* vegetable food, and use the tooth-brush daily, are seldom troubled with such affections.

Fever Sores.—The most common form of chronic ulcers are known as "*fever sores*," "*brandy sores*," "*whisky sores*," etc., and some-

times, in view of their usual locality, "*old sore legs.*" They are generally connected with and the penalty of intemperate habits. I have known several bad cases among the children of liquor-drinking parents. The ulcers are deep, the limb is swollen, in some cases nearly as hard as bone, and frequently purple or dark. The character of the sore may be irritable, or indolent, or of a mixed character, some portions being irritable and others indolent.

Treatment.—These cases require a long course of treatment, but can generally be cured, provided the patient will sign and then *keep* the temperance pledge. When painful, they are to be soothed with warm water or the warm fomentation; when hot and inflammatory, the cold douche should be applied to the whole limb daily. Callous or fungous excrescences are to be destroyed by caustic. The roller bandage is also an indispensable part of the treatment. It must be applied twice a day—every morning and evening is a good rule—and thoroughly wetted with *cold* water *after* it is applied; wet cloths should always be placed over the bandage when there is the least preternatural heat or active inflammatory excitement. All these measures, however, will fail, unless the whole surface is thoroughly attended to in the way of bathing; and the stomach and bowels are kept unburdened and well cleansed by the appropriate quantity and quality of food.

It is a prevailing opinion among drug-physicians, and a popular prejudice with the people, that it is dangerous to cure old sores. Truth, "they say," lies between two extremes. The truth in this case, as in all others, is at one extremity. It is *always* dangerous to heal them drug-opathically, but *never* dangerous to cure hydropathically.

Caries and Necrosis.—These terms are often employed synonymously; but in strict surgical parlance, *caries* is an *ulceration* of the bony structure, analogous to *gangrene* of the soft parts; while *necrosis* is the *death* of the bone, analogous to *mortification*. Caries usually attacks the spongy bones, as the vertebræ; and necrosis as generally affects the long or flat bones, as the tibia, humerus, and bones of the cranium. Necrosis in the leg or arm is generally called "fever sore." The process by which dead portions of bone separate from the living—analogous to sloughing of the soft parts—is called *exfoliation*.

Symptoms.—The bones, though insensible in their healthy state, become exceedingly painful when diseased. The swelling has no regular apex or point, but is more distressing than ordinary inflammatory swellings, especially at night. The part is hot, somewhat livid, and sometimes comes on suddenly and progresses rapidly to suppuration.

The pus is dark, sanious, and fœtid, and generally discharged through several fistulous openings or pipes; and through these the rough, uneven surface of the bone can be felt by means of the finger or common probe. Sometimes the bones of the cranium are perforated at numerous points, constituting the *worm-eaten caries* of authors. There is more or less fever, which is of the hectic character. When necrosis occurs in the center or shaft of the long bones, it seldom or never extends to their articular extremities; but the exterior layers form a canal around the dead portion, which is called *sequestrum*; and between these swollen layers and the sequestrum suppuration takes place.

Special Causes.—Professor Parker disposes of the causes of necrosis in the following summary manner: "So far as any thing *can be known*, it seems to be the result of sudden changes of temperature." But the *fact* that both caries and necrosis frequently follow local injuries, as blows and falls, and are also frequently connected with constitutional taints, as scrofula, scurvy, syphilis, mercurialization, etc., seems to indicate that something *should* be known beyond mere temperature. The greatest number, as well as the most malignant kinds of caries and necrosis owe their existence to the *combined* action of mercury and syphilis, or mercury and scrofula; or, in the language of Samuel Cooper, "to the prejudicial influence of a badly conducted course of mercury."

Treatment.—In its forming stage the disease can generally be "discussed" by douching the part frequently with cold water, the constant application of wet cloths, and one or two packs daily. The late Professor Nathan Smith recommended making a free incision down upon the bone, and even into its substance, if relief from pain did not follow the first incision, on the plan of treating a felon or whitlow; and no doubt such a practice in a *very early* stage, would lessen the extent of the inflammation: still if the cold-water measures are vigorously employed it will be unnecessary. After ulceration has taken place, "the books" furnish us with any number of vinegar-and-meal, carrot-and-onion, bread-and-milk, soap-and-molasses, rum-and-sugar, scraped-potato, tobacco, strammonium, etc., poultices, to help "digest" the affair; but I know of nothing in theory or in experience which gives them any advantage over a few folds of old linen rags well wetted in pure soft water, provided the temperature is duly regulated.

But when the disease proceeds to suppuration and exfoliation, it is important to get rid of the purulent matter and dead bone as fast as possible, yet all rough handling of the diseased part must be avoided. If any portion of bone becomes loose or projecting, or can be ascertained to be dead—in which case its color will be *whiter* or *darker* than

natural—the caustic should be applied to it. "The mild caustic," says Dr. Hill, "has a peculiar effect on diseased bone, and seems to exert a stronger influence than the bi-carbonate, or even the pure alkali—caustic potash—without any injury to healthy parts." When there are several openings they should be converted into a single ulcer if possible; for which purpose the caustic, knife, or ligature may be employed according to circumstances. Dead bone and fungous growths may be dissolved by passing tents, charged with the sesqui-carbonate of potash, into the sinuses, and pushing them against the morbid structure. Sometimes new bone is formed around the dead part, inclosing it in a shell, and producing a preternatural enlargement of the part; an opening, however, is usually left in the new formation, through which purulent matter issues. This opening must be enlarged by caustic sufficiently to allow of armed tents or caustic solutions to be passed through a tube or syringe to the dead bone, to effect its dissolution. After every vestige of disorganized matter has been removed from the ulcerated cavity the ulcer will heal kindly; yet the bone will generally remain preternaturally enlarged.

Fistula in Ano.—Any abscess about the rectum, opening either within or without the anus, or both, is known by the term, *fistula in ano*. Fistulæ are so common in this situation, that some physicians, whose practice, "from being general is confined to a particular branch of their profession," have selected "diseases about the anus" as the particular field which is to engage their "profound attention." Fistulæ in ano are usually connected with piles, and both have habitual costiveness as their common cause, although the former is sometimes occasioned by wounds and injuries.

When there is an open communication between the rectum and the cutaneous surface, the fistula is called *complete;* and *incomplete* or *blind* when it communicates with but one; the latter is called *blind internal* or *blind external* fistula, as it opens into the bowel, or upon the external skin. In a majority of cases the fistulous pipe, or *sinus*, is tortuous and branching, several distinct openings being internally connected. The sinus is lined with a semi-cartilaginous, or callous growth, having the secreting property of mucous membrane, from which exudes a thin, yellowish pus; this indurated surface is generally extremely tender to the touch.

Treatment.—The "standard authors" on surgery are surely not well posted in the matter of *curing* the disease under consideration. *Their* plan of laying the ulcer open with the knife is always barbarous, generally unsuccessful, and sometimes fatal. More than twenty years

ago a self-constituted reform school of medicine in the city of New York, published to the world (*Dr. Beach's American Practice of Medicine*) a *successful* method of treatment; yet we do not find the *regular* professors adopting or commending it, perchance on account of its *irregular* origin. The main features of this method consisted in substituting the ligature and the caustic for the knife and the scarificator.

The first process is to subdue the inflammation and overcome the irritable condition of the ulcer, for which purpose frequent warm hip-baths, with the wet compresses, must be employed; after which the exact state of the cavity may be ascertained by the probe. The complete fistula may be ligated by passing the threaded probe from the external to the internal orifice, the string being brought down by the finger introduced into the rectum. The ligature is to be tied as firmly as the patient can well bear, and tightened a little daily. Dr. Hill's method—the best extant—of tightening the ligature is, before tying, to let the ends of the string pass trough a large vial cork, separating three fourths of an inch where they emerge, and passing over a little wooden roller, fitted to radial grooves cut on the end of the cork, fig. 201. These notches will hold the stick, after turning or twisting to tighten the string.

Fig. 201.

FISTULA LIGATURE.

While the process of ligation is going on, the caustic powder must be inserted by means of pledgets of lint to act upon and dissolve the callous or cartilaginous growths. If several sinuses exist they must all be managed in the same way, and every callous fissure must be thoroughly cauterized. The part should be frequently bathed or fomented with warm water when painful, and several folds of wet cloths, covered with dry, kept constantly applied, being retained in place by a T bandage.

When branching sinuses lead into or from the main one, they should be enlarged, and all the callosity along their course destroyed by the armed tent. A blind internal fistula should be opened with a pointed probe or the caustic, at the point nearest to the external surface, thus converting it into a complete fistula to be treated as above. The blind external fistula can often be cured by the armed tent alone; but if this fail, the threaded probe can be passed through the bottom of the sinus into the rectum, and the ligature applied.

It will usually take several months' time to cure bad cases of this affection; and during the whole course of treatment the patient's diet should be extremely simple, the bowels kept entirely free by injections.

and he should keep very quiet, resting much of the time in the horizontal position.

Fistula in Perineo.—A sinuous ulceration in the perineum is generally the result of a stricture in the urethra; the urine, thus obstructed, acting upon the lax structures of the part, often occasions extensive ulcerations, attended with very offensive discharges of purulent or sanious matter.

Treatment.—After the stricture has been removed, or the urethra dilated, as the case may be, a *gutta percha* catheter should be introduced into the bladder, and worn constantly; the hard, callous edges of the ulcer are then to be disorganized by the repeated application of the mild caustic, or the pure potash, if necessary. Before applying the caustic, the parts should be soothed with warm fomentations; and if the urethra is too irritable for the constant employment of the catheter, the patient should keep on his back while it is withdrawn, taking care to have the instrument introduced before he rises, so that the bladder may be emptied without allowing any urine to come in contact with the ulcerated parts.

Strictures and Fissures.—Strictures and fissures of the urethra and rectum, though not in any sense ulcers, are so intimately connected with fistulæ that they may as well be considered in this place. The membranous portion of the urethra, between the bulb and the prostate gland, is most frequently strictured, although a stricture may occur at any part of its channel. The disease may be *spasmodic* or *organic*. In the former case obstruction is temporary, and is produced by a partial or total obliteration of the canal in consequence of its sides being pressed together by the contraction of the surrounding muscular fibres. In the latter form the obstruction is permanent, and results from a morbid thickening of the mucous membrane. A partial organic stricture may become total by spasmodic action, superadded to the structural difficulty. The most frequent cause of stricture is gonorrhea, or rather, the irritating drugs which are employed to cure it. Injuries from the passage of stone or gravel, and by surgical instruments, sometimes produce it.

Symptoms.—The spasmodic stricture is known by the sudden stoppage of the stream after it has reached the irritable spot; there is also a desire to urinate frequently and hurriedly. In the organic stricture the stream becomes crooked, gradually diminishes, and at length divides, and finally passes only in drops. The excretion eventually becomes yellow and purulent, evincing ulceration in the urethra or blad-

der. The constant habit of straining often induces hernia or piles; and when extensive ulceration has taken place, rigors and hectic fever are the precursors of a fatal termination.

Treatment.—The first measure is to relieve the bladder. When the stoppage occasions a tense, round, painful distention above the pubes, the catheter must be employed; the gonorrheal inflammation or irritation, when it exists may be subdued by frequent warm hip-baths, followed by tepid, then cool, and finally cold; the bowels must be kept free by a simple opening diet, with tepid injections when necessary; and cold water should be drank as copiously as the stomach can comfortably bear. With the subsidence of the morbid irritation, the spasmodic stricture will usually disappear; but if not, the additional measures are necessary, which pertain particularly to the treatment of permanent stricture. These consist in dilating the urethra by means of gum elastic or gutta percha *bougies*, or destroying the stricture, which is usually confined to a very small space, by the application of caustic, or both. The dilating process is managed by introducing a very small bougie at first, and after it has been worn as much of the time as possible for a day or two, a larger one, and so on, until the constricted calibre is enlarged as much as possible. If sufficient relief is not obtained by dilatation, the caustic is the dernier resort. This is applied by means of a bougie *armed* with caustic potash, or nitrate of silver, and passed to the strictured point, against which the caustic is pressed for about one minute at a time. If there are several strictures, each must be cauterized successively. Another method, called *malaxation*, which consists in introducing a bougie through the strictured portion, and retaining it as long as possible, during which time pressure is made against the stricture by an external compress and bandage, to excite absorption, has been frequently successful. During all or any of these operations, the irritation must be kept down and constant relaxation of the parts maintained by very frequent warm hip-baths or fomentations. Indeed, a majority of cases will yield to the medical part of the hydrotherapeutic treatment, without any resort to mechanical surgery whatever; and the cases are extremely rare which will require any mechanical operation except the dilating process, provided all the patient's habits and management are thoroughly hydropathic. It should be generally known that, as a majority of strictures, of both the spasmodic and permanent kind, are produced by astringent and irritating applications employed to check gonorrheal or gleety discharges, so a majority will get well by reproducing the discharge; and this may generally be done by the persevering employment of warm local baths and fomentations.

Stricture of the rectum is a thickening and hardening of the intestine, resulting from constipation; it produces a serious difficulty in passing the fæces, which are evacuated in small, contracted, elongated, or flattened lumps, or in a fine stream. As in the case of fistulæ, all callous formations must be removed by caustic; and the constricted intestine must be mechanically dilated. A piece of ordinary wood, covered with oiled silk, of a conical shape, about three inches in length, the smaller end just large enough to pass the stricture, and the other, about two inches in diameter, answers every purpose. It must be held by a T bandage, made of gum-elastic, and worn as long, and as frequently advanced as the patient can well bear; the rectum should be well cleansed with a tepid injection previous to each application of the dilator.

Fissures of the anus are ulcerous grooves in the rectum, extending upward from the orifice. The edges of the crack or fissure become thickened and hardened, and constantly exude a sanious fluid. These should be removed by caustic, as in the case of fistulæ, the patient kept quiet, the warm relaxant baths employed, and the general regimen strictly attended to.

Salivary Fistula.—Wounds of the face, which sever some one of the excretory ducts of the salivary glands, are often followed by an obliteration of the cavity of the duct, and the formation of a fistulous opening through which the saliva escapes upon the *outside* of the face. The difficulty may be remedied by making an opening with a small trochar, passed into the open end of the duct at the fistulous opening, and then inserting a gold or silver tube to guide the saliva into the mouth; after which the fistula may be healed by adhesive straps, or these aided by the mild caustic. When the injured parts are entirely healed, the canula or tube may be removed.

Fistulæ Lachrymalis.—In the true lachrymal fistula the lachrymal sac is distended to a tumor at the inner corner of the eye, which ulcerates and forms an opening through which the tears are discharged on the face, instead of passing to the nose. There is also a morbid secretion of the sac distinct from the tears, for which the mild caustic may be necessary; and the nasal duct may be so obstructed as to require probing, and the application of a tent.

CHAPTER VI.

ABSCESSES.

An *abscess—aposteme—imposthume*—is a collection of purulent matter in a cavity, or in the substance of an organ or part of the body. Sometimes the pus is contained in an orbicular cavity lined by a cyst, and sometimes it is infiltrated into the meshes of the areolar tissue. The formation of an abscess is often preceded by chills, or shivering fits, called *rigors;* and just before suppuration takes place, the pain, tension, swelling, throbbing, etc., are increased. After matter is formed, a sensation of weight and throbbing continues in the part, and a conical projection soon denotes the pointing of the abscess, preparatory to its bursting and discharging its contents. Some abscesses will *point* in a week; others may not do so in several months. Generally a *fluctuation* may be felt in the swelling previously to its pointing. In order to distinguish the fluctuation of an abscess to the best advantage, two or three fingers should be placed on one side of the swelling, and the opposite side briskly tapped with the fingers of the other hand.

Deep-seated abscesses, and those formed beneath fasciæ and dense fibrous tissues, do not readily point, but they are attended with greater constitutional disturbance; and severer hectic symptoms, as shiverings, night-sweats, small, frequent pulse, etc. A sense of weight and coldness in the part will also succeed the acutely throbbing pain; and not unfrequently the integument over the abscess will become œdematous.

The general treatment of abscesses is precisely the same as that of inflammatory tumors and ulcers, preceding the formation of matter; after which, as a general rule, they are to be opened by cutting or cauterization—usually the former.

Empyema.—This is a collection of matter in the cavity of the pleura. Inflammations of the lungs or of their membranes occasionally result in suppuration, producing the abscess under consideration. It is known by a manifest enlargement of the side affected; a dry, tickling cough; laborious breathing, which is easiest in the erect posture; fixed pain in the chest, with difficulty of lying on the sound side.

Treatment.—In a few instances the matter has worked its way into the bronchial tubes and been expectorated, followed by recovery.

When any thing is done surgically, it is the operation of *paracentesis thoracis*. An incision is made with the bistoury an inch and a half in length, through the integuments, usually at the upper edge, and a little behind the middle of the sixth rib; the intercostal muscles are carefully separated, and the point of the instrument passed in through the pleura costalis; a canula is then introduced, through which the matter escapes. Care must be taken that air does not pass in through the tube; to prevent which, the patient may incline, after the introduction of the canula, on the affected side; or a valvular instrument may be used. This operation has not been generally successful.

Maxillary Abscess.—This disease is an ulceration of, and collection of matter in the antrum of the upper maxillary bone. It is generally produced by the irritation of decaying teeth, and may exist for years, passing for toothache. It may be known by severe and obstinate pain in the face just below the prominence of the malar bone; the fetor is also extremely offensive to the patient, and to others about him. Sometimes there is a considerable discharge of offensive matter from the nose, and in some cases the face is much swelled and disfigured.

Treatment.—The inflammation and irritation should be allayed by derivative baths and local fomentations. The surgery proper in the case consists in extracting the second or third molar tooth, or both; and if the pus does not find a ready exit, a hole is to be drilled through the alveolus into the antrum about the size of a goose-quill; the cavity should then be repeatedly washed by injecting warm water; and if the fetor does not soon subside, a few applications of the mild caustic, in solution, should be made.

Mammary Abscess.—Abscess in the breast is sometimes the result of injuries, as blows, pressure, etc.; but generally it is the consequence of bad management or mal-treatment during the periods of gestation, childbirth, and lactation. The disease usually appears in four or five weeks after parturition; in about ten days thereafter suppuration takes place, beginning in several distinct parts, and forming many separate sinuses, all of which, however, communicate. It opens at one or several points.

Treatment.—This distressing affection is a standing disgrace to the doctor, the nurse, the patient, and all parties concerned. It is produced by the most foolish stuffing, and slopping, and stimulating, and heating, and drugging; nor is the usual method of doctoring the disease, after it has been artificially produced, half as well calculated to cure the

malady as to kill the patient. If promptly and properly treated, it can almost always be speedily resolved in its early stages. The constitutional treatment is more important than the local, and both should be managed on the plan heretofore recommended for visceral inflammation. The wet-sheet pack, or frequent tepid ablutions, with hip and foot-baths, are the general measures; and the constant application of several folds of wet linen, very frequently renewed and well covered, is the local appliance. Water may be drank freely, but the diet should be rather dry.

Onyx.—A collection of purulent matter between the laminæ of the cornea, having the shape of a nail, is so called in surgical technology. Its form, however, is nearly semilunar, like the white mark at the root of one of the finger nails. It usually occupies the lower edge of the cornea, and may be distinguished from *hypopyum* by its form and situation remaining unchanged in all positions of the patient's head. This affection can generally be removed by the appropriate remedies to reduce inflammation—on which its existence depends—and promote absorption. The head and eye-baths, a moderate douche, and derivative, hip, and foot-baths, are all serviceable.

Lumbar Abscess—Psoas Abscess.—This is one of the most formidable and fatal of abscesses. It commences with a dull, heavy aching in the lumbar region; pains shooting down the spine and thighs, and a lameness in one or both lower limbs, with a difficulty of standing erect; there is usually a drawing up of the testicle of the side more particularly affected; the patient is easily fatigued by exercise, and when lying down is disposed to flex the thighs or the abdomen. At length the local pain becomes throbbing, chills and night-sweats occur, a fluctuating enlargement appears along the psoas muscle, and the apex of the tumor presents itself immediately below the groin. The disease usually occurs in scrofulous persons, and is often connected with caries of the spine, in which case curvature of the spine and paralysis of the lower extremities are apt to result.

Treatment.—If detected in the early or forming stage, this disease requires thorough constitutional treatment, of which the pack-sheet daily is the leading process. The diet must be strict, the bowels kept open by injections, and wet cloths constantly applied to the painful part. If the treatment is not commenced early enough to prevent suppuration, the abscess, as soon as fluctuation is clearly detected, should be punctured to let out the matter. When the pus lies very deep, an opening may be made to it with caustic potash. After the abscess is

opened, moderate compression should be kept up, and the water-dressing continued.

Note.—Sometimes the swelling of a lumbar abscess in the bend of the groin so nearly resembles that of a hernial protrusion, that great difficulty is experienced in the diagnosis; and the difficulty is increased by the fact that the same impulse is communicated to the swelling when the patient coughs in either case. Usually, however, the swelling in lumbar abscess is larger and more toward the ilium. In cases of extreme doubt, a needle may be introduced into the tumor to ascertain the character of its contents.

Hip Disease—Coxarum Morbus.—This disease, like the preceding, is seldom cured in the regular way. It consists in an abscess originating from caries of the head of the os femoris; it generally occasions a luxation of the hip joint and a permanent shortening of the limb. The symptoms come on insidiously. Generally a slight pain in the knee is the first thing noticed. On a close examination the limb will be found elongated, which causes the knee to be slightly bent, and the whole limb more or less disfigured. At this period the pain will affect the groin, and may be severe. Extensive ulceration has generally taken place when purulent matter makes its appearance; this may be discharged at several points, although the abscess commonly opens in the groin. In some cases the head of the femur is not destroyed, and anchylosis results; but usually the head is dislocated upon the dorsum of the ilium, where it may form a new joint, and produce a deformed and shortened limb; when the head is entirely destroyed, the limb will be shortened several inches.

Treatment.—This does not differ essentially from that applicable to the preceding disease. When fistulous openings exist, their callous edges or fungous growths may require the caustic; and when they are connected, they should, if practicable, be converted into a single one by the ligature. In order to enable the patient, during the lengthy process of cure, to exercise in the open air, he should be supplied with crutches, and the limb should be dressed with gum-shellac, or other light splints, to keep the affected joint as motionless as possible.

Prostatic Abscess.—Abscess of the prostate gland is a result of acute inflammation, and may be known by rigors, with swelling, heat, and redness of the perineum externally. As soon as matter has formed, the abscess must be opened at once, lest the matter work its way into the rectum or urethra.

CHAPTER VII.

HERNIÆ, OR RUPTURES.

The terms *hernia* and *rupture* are commonly employed as synonymous; but writers who are strict in the use of language, apply the former word to all protrusions of the viscera or parts from their natural cavities, while the latter term is limited to abdominal protrusions. The word rupture, however, is always a misnomer, for it implies that something is burst or torn, which is not necessarily the case.

Varieties of Herniæ.—These are innumerable. They may involve the *brain*, *lungs*, *stomach*, *intestines*, *bladder*, the different portions of the *peritoneum*, and in rare cases, the *liver*, *spleen*, *uterus*, or *ovaries*. The parts commonly affected with hernia are the *abdominal viscera*; of these the *intestines*, or *omentum*, or *both*, are the portions usually protruded; and the *abdominal ring*, the *navel*, and a point at the inner side of the *femoral vein*, just below Poupart's ligament, are the *places* where herniæ most frequently appear. They are met with occasionally at all points of the *linea alba*, at the *foramen ovale*, the *ischiatic notch*, in the *perineum*, and in the *vagina*.

Technology of Herniæ.—This is derived from their contents and locality. A protrusion of the brain is called *encephalocele*, or *hernia cerebri*; of parts within the thorax, *pneumatocele*; of the stomach, *gastrocele*; of the intestine, *enterocele*; of the omentum, *epiplocele*; of both, *entero-epiplocele*; of the liver, spleen, bladder, uterus, etc., *hepatocele*, *splenocele*, *cystocele*, *hysterocele*, etc. Abdominal herniæ are distinguished according to the aperture from which they escape. At or near the navel they are called *umbilical*—*exomphalos*, or *emphalocele*; through the linea alba above the umbilicus, *epigastric*; through the linea alba below the umbilicus, *hypogastric*, *infra-umbilical*, or *cæliocele*; through the abdominal ring, *inguinal*, or *supra-pubian*, and this variety, when small, is called *bubonocele*, and in man, *oscheocele*, or *scrotal hernia*, when the intestine has descended into the scrotum, while in woman its extension to the labiæ is called *epiciocele*, or *vulvar*, *pudendal*, or *labial* hernia; through the crural canal, *femoral*, or *merocele*; through the opening which gives passage to the infra-pubian vessels, *infra-pubian*; through the sacro-ischiatic notch, *ischiatic hernia*,

through the levator ani, and appearing at the perineum, *mesoscelocele*, or *perineocele*; through the parietes of the vagina, *coleocele*, *elytrocele*; and through the diaphragm, *diaphragmatocele*, etc.

"*Ventral hernia*" includes all forms of abdominal protrusion, except those occurring at the umbilicus, abdominal ring, or femoral sheath.

In inguinal hernia, the intestine may be arrested in the canal, after having passed through the internal abdominal ring, when it is called *incomplete* inguinal hernia; when it passes through the canal and emerges at the external abdominal ring, it is called *complete* inguinal hernia. Complete inguinal hernia is called *direct*, or *ventro-inguinal hernia*, when the bowel passes through the space between Poupart's and Gimbernat's ligaments, leaving the external ring and spermatic cord on the outside; and in other cases it is termed *oblique*.

Congenital hernia is the protrusion of some portion of the abdominal contents into the tunica vaginalis testis, owing to a want of adhesion between its sides after the descent of the testicle.

Pathological Distinctions.—In abdominal hernia the protruding part usually pushes along a portion of peritoneum, which forms a sort of pouch, and is called the *hernial sac*; the narrow part of which is the *neck*, and the expanded portion the *body*. The bladder and cæcum, however, not being contained in the peritoneum, do not have a complete sac; and in cases of wounds and ulcerations, the sac may be absent; nor does it exist in *internal* herniæ, in which there is really no protrusion at all.

In complete or direct inguinal hernia, there are *two necks*, one at the internal and one at the external ring.

Hernia is called *reducible* when the displaced part is attended with no disturbance of the general health, and is susceptible of being easily replaced; when incapable of replacement, from its size or from adhesions, it is called *irreducible* or *incarcerated*; and when the incarcerated part is constricted and inflamed, obstructing the passage of fæces, and causing violent pain and sickness, it is called *strangulated*.

Special Causes of Herniæ.—Surgeons tell us that blows, falls, violent exertions, as lifting, wounds, dropsy, abscesses, pregnancy, straining at stool, hard riding, and severe coughing, are the common exciting causes, while general debility is the general predisposing cause. All of these causes are favorable to these complaints, and some of them alone produce them; but *the* general and special cause is *costiveness*. Without this predisponent condition, most of the other causes named would be powerless. Many persons, perhaps a majority in *re-*

fined society, scarcely ever go to stool without being obliged to strain dangerously, to respond to the "solicitation of nature." And when this straining has been kept up for years, it is not remarkable that very slight accidents should cause the "bowels to gush out" of their natural inclosures in the shape of hernial protrusions. Some have estimated the subjects of hernia to be one eighth of an entire population.

Diagnosis of Hernia.—In a *reducible* hernia the tumor may appear gradually or suddenly at some one of the points above named; its size is changeable, being larger when the patient stands, and smaller when he lies on his back; compression will generally diminish it; it is usually more tense after a full meal, or when the patient is flatulent; when the patient coughs, an impulse may be felt at the tumor, as if air were blown into the swelling. When the sac contains intestine only, the tumor is uniformly smooth and elastic, and also painful to pressure; when it contains omentum only, the tumor is insensible, and has a more flabby, or doughy, and somewhat unequal feel; and when it contains both—*entero-epiplocele*—a part of the contents of the hernial tumor will slip up with a gurgling noise, leaving behind a portion less readily reduced.

Irreducible herniæ are distinguished by more or less difficulty in evacuating the bowels; colic pains are frequent, with a variety of dyspeptic symptoms. They do not usually occasion great inability or inconvenience, but are liable to *intussusception*—a slipping of one portion of bowel into another—and this is a dangerous and often fatal accident.

Strangulated hernia presents, first, an irritable condition of the parts affected, with a hectic flush externally, and a pain at the point of constriction; the pain generally extends to the diaphragm, followed by nausea, vomiting, obstinate constipation, rapid pulse, and general feverishness. The peristaltic action is often inverted, and fæcal matters are ejected from the stomach. If reduction is not soon effected, the bowels become distended with air, the abdomen hard and tense, the extremities cold, while hiccough, clammy sweats, and a sinking pulse, with a sudden *cessation of the pain*, denote the existence of mortification, and the approach of death.

General Treatment of Hernia.—When the hernia is reducible, the protruded part is to be returned to its natural position, and maintained there by a truss, or other suitable contrivance. In some rare cases, however, the contents of the hernia are so bulky, or the parts so altered, that it is advisable merely to support the tumor with a

suspensory bandage, unless an attempt at a *radical cure* should be deemed expedient.

In irreducible cases the strictest attention must be paid to the diet, which should be so managed as to obviate the least tendency to constipation. With this precaution, the use of a truss or bandage, and the avoidance of all rough exercises, the patient may "live through life" very comfortably.

But when the reducible variety suddenly becomes incarcerated, and in all cases of strangulation, the first attempt at relief should be by the *taxis*, or hand operation. The taxis can almost always be successfully performed by any one who has a clear idea of the mechanism of the part and the existing obstacles.

The patient is to be placed in a horizontal posture on the sound side—these directions apply particularly to inguinal and femoral hernia, other varieties not requiring special instructions—with the hips elevated, the chest inclined forward, the thigh of the affected side flexed upon the abdomen, and drawn toward the other—all of which is intended to relax the muscles and integument at and around the protrusion. The sac is then to be gently grasped, and moderately elevated and compressed with one hand, while the forefinger of the other hand presses as much of the tumor as possible up to and within the point of protrusion; the returned portion is to be retained while the middle finger pushes up another portion, when the forefinger may be again employed for still another portion; the middle finger holding the part *it* has brought up, or the ring finger may be used, while the others are both occupied in holding the advantage gained. In this way the whole tumor is to be removed.

In the *external inguinal hernia*, the pressure must be directed *upward* and *outward*, along the course of the spermatic cord; but in *femoral hernia* it is to be directed first *downward* and then *backward*. In *umbilical* and *ventral hernia* the pressure is to be made directly *backward*. Violence must never be used, nor the parts handled so roughly as to occasion much pain.

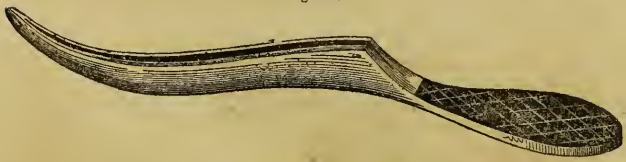
Several circumstances, however, may interfere with the operation of taxis, or defeat its successful result, as extreme distention of the protruded intestine, great pain and tenderness, active inflammation, severe constriction around the neck of the sac, etc.; but these things should not discourage us. We have in *cold water* or ice a suitable auxiliary for the first-named complication; its assistance will often enable us to succeed at once. When the part is excessively tender and irritable, *hot water* must be brought in requisition. The full warm bath, or local fomentations, or both, may be employed, and these may be followed by

a reapplication of the cold process. Our "old school" friends, on *their* characteristic principle, that when a patient is suffering locally, he ought also to be made to suffer constitutionally, recommend *tartar emetic* and *bleeding* to produce *sickness* and *faintness*, with a view of bringing about *relaxation* and *quietude*; but warm water externally, and internally by injection, may be made to produce any degree of these effects which can be desired. After the employment of either of these water processes, the taxis is to be tried again.

There is yet another resource in bad cases—*dry-cupping*—which Dr. Hill (*Eclectic Surgery*) significantly calls *traction from within*, and which is not mentioned in any other work with which I am acquainted. A large cup, or any convenient vessel, may be applied to the abdomen, covering the umbilical region, in which a piece of burning cotton is placed to exhaust the air; the "suction" thus established will *pull* upon the protruded intestine while we may be *pushing* from without. Holding the patient's heels up, and head down, and jouncing him in that condition, has succeeded in "domestic practice," in reducing a rupture, of which Dr. Hill gives a notable instance.

In extreme cases, when the strangulation with inflammation has existed, despite the efforts to reduce it, for twelve or fifteen hours, the only chance for the patient is by the operation with the knife; yet this does not afford him quite an equal chance to live. It consists in making an incision through the skin three or four inches in length, along the course of the tumor, cutting through the successive layers—described in the first part of this work under the head of "Anatomy of Hernia"—or coverings, by picking up a small bit at a time with the forceps and cutting horizontally through it under their points, until an opening into the sac—which can be distinguished by its bluish appearance—is made. "The sac"—I quote substantially from Dr. Hill—"is then opened in the same manner, and the small director, fig. 202, inserted, and an opening

Fig. 202.

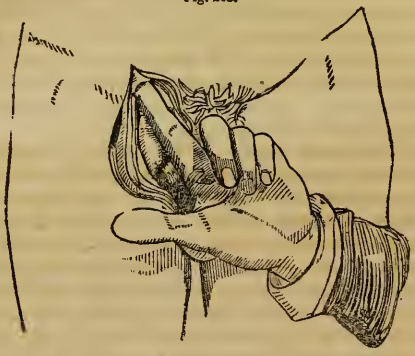


THE SMALL DIRECTOR.

made large enough to admit a finger. The forefinger of the left hand is

next introduced, fig. 203, and passed up to the neck of the sac to find

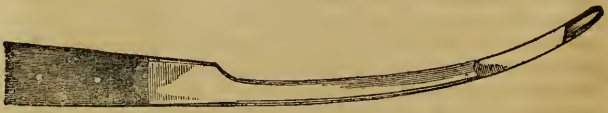
Fig. 203.



OPERATION FOR STRANGULATED HERNIA.

the stricture, which may be at the internal or external ring, or at both places; the stricture should be sufficiently dilated to permit the finger to enter the abdomen; this may be done by the probe-pointed bistoury, or similar knife, made for the purpose, not edged quite up to the point, nor but a short space below it, fig. 204. The blade is passed up *flat-*

Fig. 204.



HERNIAL BISTOURY.

wise, along the finger, and pushed on through the stricture. Its edge is then turned upward, cutting no more than necessary to admit the finger, figure 205. The cut must always be made *directly upward*, parallel to the linea alba, to avoid the epigastric artery. After

Fig. 205.

CUTTING THE STRICTURE.

the stricture is thus relieved, the parts must be examined, and if firm adhesions have taken place, or fatty deposits accumulated largely, no attempt at reduction must be made, but the wound allowed to heal. When mortification has taken place, the only chance is by an artificia. anus. In femoral or crural hernia, the sac is usually very small, and embraces the bowel very tightly; hence it must be opened with caution.

Radical Cure of Hernia.—Beyond the *taxis* for reducing displacement, and the *operation* for relieving strangulation, little or nothing has been done for this class of invalids in the way of *regular* surgery, while *mechanical* skill has generally been content to prevent further mischief by the constant application of a truss. But it has been noticed that in recent cases the pressure of a truss has sometimes excited adhesive inflammation in the parieties of the canal between the abdominal rings, or in the femoral sheath, and thus closed the passage against all future danger. Acting on this hint, others have succeeded in some *recent* cases, by keeping up as strong pressure as the patient could bear, by means of a truss with a large and hard pad, so applied as to compress the whole canal or sheath through which the viscera had passed. Others have succeeded in cases of long standing, by adding to the *mechanical-pressure* treatment, that of *vital irritation*, the combined effect of both being to produce the requisite degree of adhesive inflammation to obliterate the canal, sheath, or cavity, where the rupture presents. Professors Morrow and Hill, of Ohio, employ an *irritating-plaster*—compounded of bloodroot, mandrake, wake-robbin, pokeroot, tar and rosin—large enough to cover the whole canal or sheath—two to two and a half by three to three and a half inches—over which the truss is worn, the pad of which is nearly as large as the plaster. The part is first shaved, the plaster applied, and then the truss is adjusted as tightly as the patient can bear, the compression being diminished as the parts grow tender. The truss is removed daily, and the plaster re-spread, during which the patient must keep perfectly still in the horizontal posture, with the thighs flexed upon the abdomen. When the truss cannot be longer borne on account of the pain, it is substituted by a *compress* and *bandages*; and while these are worn the patient is recommended to keep on his back. A point of practice especially insisted on is, that no protrusion must on any account be allowed to take place during the treatment. Should the pain and irritation become intolerable, the plaster is to be omitted for a few days, a slippery elm poultice taking its place; and this the hydropath could readily supersede by simple flour to the surface, over which

warm wet cloths might be applied. It is contemplated, by this plan of treatment, to excite a purulent discharge from the surface covered by the plaster, and keep up the suppuration from four to six weeks.

The principle upon which this cure is predicated is clearly correct; and a score of physicians, all understanding the principle, might find a score of ways to apply it successfully. It can matter but little what the irritants are, provided they produce precisely the proper degree of irritation, and do not poison the system from absorption. An astringent plaster, made of the extracts of hemlock, white oak, green ozier, and the common or rock break, with the occasional application of a few drops of *oil of eggs*, in combination with the pad and truss, constituted the empirical but rather successful plan of Hurlbutt's treatment of hernia, for which he obtained a patent.

Umbilical and Ventral Herniæ.—Infants are most subject to *umbilical* hernia; the protrusion is generally imputed to straining while crying, when the abdominal bandage which is placed around the body is *too loose*. This is one among many great errors which have crept into professional men's minds. The truth is, that this bandaging the body is just what produces the rupture in a large proportion of cases. It is this that makes the child cry and strain; and the tighter the abused infant is girded with it, the more it will cry and strain, and the more liable it will be to have a rupture. It sometimes occurs in parturient females from the muscles giving way during the powerful contractions upon the gravid uterus.

Treatment.—The protruded portion of bowel can generally be reduced very easily by the hand, after placing the patient on the back, with the shoulders moderately elevated, and the thighs flexed upon the abdomen. A sufficient degree of adhesive inflammation to effect a radical cure may be excited by a modification of the plan proposed for the preceding varieties. A much less amount of external irritation will usually answer the purpose, and the pad of the truss, by which the compression is made, must be so adjusted that the pressure will keep the sides of the aperture constantly in contact. Dr. Hill gives the following directions for the mechanical treatment, which I copy as the best extant: "Take a circular piece of the thick spongy portion of sole leather, of the proper size to cover the opening, and extend from one and a half to two inches all around it. Excavate the fleshy side of the leather, so as to make it regularly concave, the center of the depression being about half an inch below the plane of the circumference. Place the patient in the position for reduction, and bring the parieties of the hole in the muscles in contact, so as completely to

close the orifice, by pressing from the sides, while the muscles are in this relaxed condition. The edges being thus kept in contact, apply, directly over the point of protrusion, a layer of raw cotton or soft lint, wet in a strong decoction of white-oak bark. This application should be just large and thick enough to fill the excavated surface in the leather, without causing any pressure. Apply your leather pad over it, and secure it by a bandage passed round the body, sufficiently tight to compress the muscles, and keep in contact the parieties of the aperture. It is better to fasten the pad to the bandage before it is applied. This should be kept on six or eight days without being removed, unless it produce too much irritation. It should be wet once or twice a day with the oak decoction, by applying it upon the surface and allowing it to soak through the pad and cotton." One or two weeks will often suffice to produce adhesion in an infant, while an adult may require the treatment for one or two months. While removing the dressings the patient must be placed in the position before described, and the walls of the abdomen firmly held by an assistant, so that no motion be allowed to interrupt the adhesive process.

CHAPTER VIII.

DEFORMITIES.

THE deformities which result from accident, disease, or malconformation, are innumerable; but an understanding of the principles which apply to the management of those which are common, will readily suggest the modifications applicable to unusual cases.

HARE-LIP—LABIUM LEPORINUM.—This is a fissure in the upper lip, which may be single or double. In the former case it is usually on one side of the mesial line; in the latter each fissure extends downward and outward from one of the nostrils, as in fig. 206. In some cases the division extends backward through the palate bone, and often the front teeth project through the fissure, adding greatly to the deformity.

Fig. 206.

DOUBLE HARE-LIP.

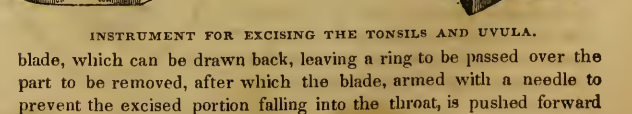
Treatment.—The operation of tying by the twisted suture is the

only remedy. The edges of the fissure are raised with the fingers or forceps; a flat piece of wood is placed between the lip and gum; and the edges are then pared off from both sides upon the wood with a scalpel or bistoury, leaving the edges straight like the shape of the letter V. The bleeding can be stopped by sponging with cold water, after which a thin sewing needle is passed through and across the fissure near its lower extremity; the needle must penetrate nearly to the inner surface of the lip, which will keep the inner edge together while the ligature secures the outer edge. After this needle is secured by the thread two others are to be introduced above at proper distances, and the part dressed with wet lint, over which a bandage is applied, and kept constantly wet with cold water. Adhesion will take place in about a week, during which time the patient must be kept very quiet; after this time the needles may be removed and adhesive straps applied. When two fissures exist each is to be treated in the same way, and both should be operated upon at the same time. When projecting teeth are in the way they should be extracted.

Tied Tongue.—Notwithstanding I have had some fifty applications to cut babies' tongues, I have never yet seen a case of this kind. It is an extremely rare occurrence in reality, though very apt to exist in the imagination of nurses. When the *frenum linguæ* is extended to the tip of the tongue, firmly holding this "unruly" member to the floor of the mouth, and preventing the child from sucking, it is a *tongue-tie;* and then the surgeon may elevate the member with one or two fingers, and snip the string across as near the floor of the mouth as possible, with a pair of scissors. The cut should rarely extend beyond one eighth of an inch.

Enlarged Tonsils and Uvula.—These are rather inconveniences than deformities; yet it is sometimes advisable to excise them. The proper instrument for doing this, fig. 207, has an angular or rounded

Fig. 207.

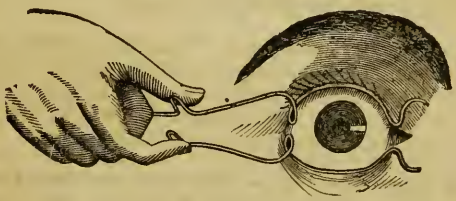


INSTRUMENT FOR EXCISING THE TONSILS AND UVULA.

blade, which can be drawn back, leaving a ring to be passed over the part to be removed, after which the blade, armed with a needle to prevent the excised portion falling into the throat, is pushed forward against the tumor.

Squinting—Strabismus.—In the majority of cases of permanent squinting, the difficulty is owing to a disproportionate contraction in the recti muscles, one being too much relaxed and the other preternaturally contracted. The remedy consists in a division of the *contracted* muscle, and this is usually the *internal rectus*. The eye is secured and held by the wire-spring speculum, fig. 208; a double-hook is then

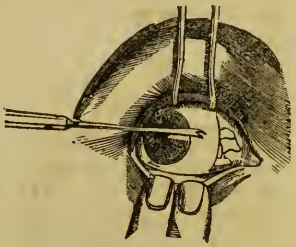
Fig. 208.



SPECULUM APPLIED TO THE EYE.

hitched to the conjunctiva midway between the margin of the cornea and internal canthus, by which the ball is rolled outward, as represented in fig. 209, and the handle then held by an assistant. The operator next raises the conjunctiva with fine hook-forceps, cuts into it perpendicularly with the curved scissors, and continues to raise and divide the cellular tissue until he reaches the muscle, when he severs it with the scissors.

Fig. 209.



OPERATION FOR STRABISMUS.

If the muscle has been completely divided, the patient, on having the eye released, will be able to turn it in all directions, except directly inward. After the operation, the eye requires to be kept covered for a day or two with a wet cloth.

Superfluous Fingers and Toes.—Supernumerary appendages to the hands and feet are not of much consequence; but as they are not usually attached by a regular joint, they may readily be got rid of by means of the ligature or knife.

Web Fingers.—These only require division by the scalpel, and to

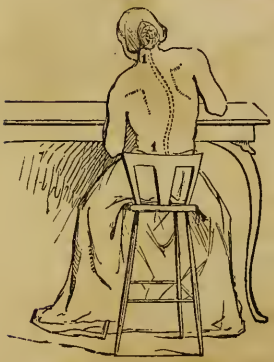
be prevented from reuniting by a piece of oiled silk kept between the fingers until cicatrization takes place.

Wry Neck.—If this deformity is so great as to render an operation desirable, the constricting muscular tendon or fascia is to be divided with the knife. The incision should be as superficial as possible; when the muscle has been completely divided, it will *snap* back. The hemorrhage can be prevented by the ordinary compress.

Spina Bifida—Hydro-Rachitis.—There is a *possibility* of curing some cases in which the membranous covering is rather *thick and firm*, by means of a linen compress and bandage, applied moderately tight, and so adjusted as to press the tumor down to a level with the surface. If inflammation exists, the cold water-dressings must be added.

Spinal Curvatures.—These deformities, which have been considered in the preceding part of this work, are rather medical than surgical maladies; and the subject is only introduced here to add an ocular demonstration of the theory advanced in relation to their predisposing and proximate causes. Fig. 210 is a representation of a single curva-

Fig. 210.



MISPOSITION AT WORK.

Fig. 211.

DOUBLE CURVATURE.

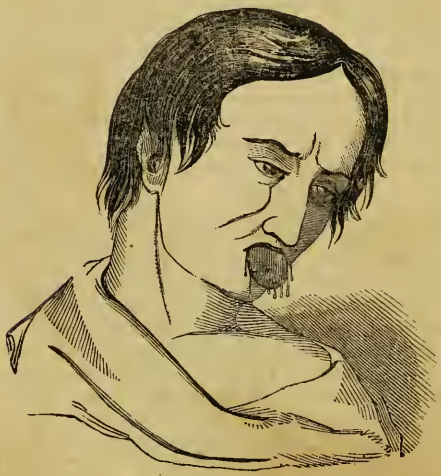
ture in its forming stage, occasioned by a habitually-improper position at a work-table, which is raised too high. Those who have a clear idea of the manner in which these ailments originate, will at once appreciate the absurdity of the ordinary treatment with mechanical machinery and surgical cauterization, by which many poor backs have been cruelly tortured and many bodies permanently crippled. An extreme result of the same cause is seen in the curvature, fig. 211.

Scrofulous persons, from their greater frailty or laxity of organization, are peculiarly liable to lateral curvatures, when exposed to any causes which debilitate the muscular system, or throw the different sets of muscles out of balance.

In double curvatures the misposition of body is generally connected with causes which tend especially to debilitate the abdominal muscles, as constipation, hot drinks, feather beds, etc.

Mercurialized Tongue.—This is both a cruel disease and a horrid deformity, as the accompanying representation will bear witness, fig. 212, and I introduce the subject in this place for the especial pur-

Fig. 212.



poses of protesting against its cause, and against the treatment which those physicians whose "healing art" creates the disease, recommended to cure it. This treatment consists in making long and deep incisions into the tongue with a scalpel. It is not strange that those practioners, whose "remedies" produce such consequences, should be the poorest doctors in the world when those consequences themselves require medication. Nothing will reduce this violent mercurial inflammation equal to the wet-sheet pack, so managed as to produce moderate but frequent perspiration. At the same time the bowels must be kept very free with tepid injections, the wet compress applied to the neck, the mouth frequently rinsed with cool but not very cold water, and sips of cool or cold water—as either is most agreeable to the patient—swallowed whenever the patient has the ability to swallow. When the body is extremely sensitive to cold, a tepid ablution, followed by the dry pack, is the best way to promote a perspirable condition of the skin, and this may be frequently repeated.

Professor Chapman, in a text-book for medical schools (*Materia Medica*), tells us that "Occasionally mercury, from some *unaccountable* cause, instead of operating as a remedy, acts as a poison;" and Dr. Thacher, author of two standard works (*American Practice of Medicine*, and *American New Dispensatory*), informs us that "no rules can be given or regarded to regulate its administration" or obviate the uncertainty always attending its introduction into the human stomach; and surely such authorities sufficiently sustain the protest here entered against destroying any more tongues, teeth, gums, palates, jaws, and lips—I have seen one case in which both lips were eaten off by a mercurial action—and ruining any more constitutions by this Paracelsian quackery.

Pseudarthrosis.—This is an unnatural or false joint, resulting from a failure of the portions of a fractured bone to unite by ossification or callus; it may be caused by morbid habit of body, or the fault may arise from the fractured bones not being properly brought into contact. A ligamentous capsule forms around the extremities of the broken bones, which finally become smooth and round; and in some cases a regular ball-and-socket joint is formed. The most hopeful plan of treatment is to pass a seaton-needle, armed with a skein of silk, through the limb between the ends of the bones, by means of which a running sore may be kept up for six or twelve months, and *possibly* adhesive inflammation excited and a re-union produced.

Club-Foot—Talipes.—Surgeons distinguish four varieties of this

deformity. In the first—*talipes varus*—fig. 213, the foot is turned

Fig. 213.

TALIPES VARUS.

Fig. 214.

TALIPES EQUINAS.

inward, the patient walking on the outside of it, the heel being elevated. In the second variety —*talipes equinas*—fig. 214, the heel is more or less elevated, the patient walking on the ball of the foot or on the toes, and pressing equally on all the toes, or principally on the side of the little, or that of the great toe. In the third—*talipes vulgus*—the foot is turned out so that the patient walks on the inner surface, the external edge being raised from the ground, and the sole standing outward; and in the fourth—*talipes calcaneus*—fig. 215, the toes and foot are elevated to an acute angle with the leg, the heel resting on the ground.

Fig. 215.

TALIPES CALCANEUS

Causes.—The first variety is produced by a contraction of the

muscles of the calf of the leg and the adductors of the foot; the second variety is usually owing to a contraction of the gastrocnemii muscles alone, but sometimes the flexors of the toes are also contracted; the third variety is caused by the contraction of the adductor muscles, and also those of the calf of the leg; and the fourth variety is owing to the contraction of the tibialis anticus and the extensor muscles. These deformities are usually congenital, but may result from accidents.

Treatment.—The majority of cases can be remedied by proper mechanical apparatus, if it is applied early—say before three years of age. A variety of machines are in use, and the skill of the surgeon is required to adapt one to each particular case. They consist essentially of a stiff shoe or sole, fixed to an upright shaft, to which springs are so attached as to make gentle but constant extension against the contracted muscles. Where machinery fails, or is not applicable, the operation of *tenotomy*—a division of the contracted tendon or tendons—is the only chance. A division of the tendo achillis is sufficient in a majority of cases of the first variety. The skin is drawn tense so that it will cover the wound when it contracts, and a long, narrow-bladed knife is passed through the skin flatwise between the tendon and the bone, near the anterior surface of the tendon, one or two inches above the internal malleolus, and carried through to the skin on the opposite side; the edge is then turned upon the tendon, and while an assistant bends the foot so to put the tendon firmly on the stretch, this is cut through, when it will separate with a crackling noise. The limb is kept in an easy position for three or four days, and then placed in a suitable machine to keep up extension and fix it in its proper situation.

The posterior tibial muscle can be most readily divided about two inches behind and above the internal malleolus; the anterior tibial, where it passes over the ankle joint; and the flexor of the great toe on the sole of the foot, where it may be seen and felt projecting like a strong cord.

Contracted Sinews.—A contraction of the flexors of any part of the body is so termed. It is most frequently seen in the fingers or toes over-riding each other. The fingers are also contracted from inflammation, and a "club-hand" is sometimes met with. Some of the cases may be relieved by an incision through the skin; but others require the operation of dividing the tendon or muscle affected—*tenotomy* or *myotomy*.

CHAPTER IX.

DISLOCATIONS.

Technology.—A displacement of one bone from its natural articulation with another is called a *simple* dislocation, when unaccompanied with external laceration or fracture; and *compound* and *complicated*, when those conditions co-exist. Its readjustment is termed *reduction*. The mechanical means employed in reduction are *extension*—the force applied by the surgeon on the luxated part; and *counter-extension*—the force employed to fix the body in position, which may be by machinery, such as pulleys, or by the hands of assistants. Dislocations are called *partial* when the bone is moved out of position *in* its socket, or on its articular surface, without being thrown completely out or off.

Symptoms.—A dislocation is known by a change in the external *form* of the joint; an alteration in the *length* of the limb; the altered axis or *position* of the limb. The patient may have the power to move the limb *immediately* after the accident. When considerable swelling has taken place, it is often extremely difficult to distinguish between a dislocation and a fracture *near the joint*. When muscles are ruptured, there is great effusion and inflammation in the part.

Treatment.—The principal obstacle in the way of reduction is the contraction of the muscles; and this difficulty increases with the length of time the part has been displaced. When luxation has existed for several weeks, adhesions are apt to occur, forming a new joint or an anchylosis, and rendering reduction impossible without a new dislocation, and doubtful with.

Very soon after the accident the displaced bone can generally be replaced with very little force. But when the muscular contraction is strong, we must employ, in addition to extension and counter-extension, warm water to the part to relax the muscles particularly implicated; and in severe cases, the full warm-bath, to relax the whole muscular system; and in extreme cases, the patient must also drink plentifully of warm water, and have the throat frequently tickled, to excite and maintain considerable nausea. The extending force should always begin gently, and be gradually increased, while the counter-extension should, of course, be fixed and uniform. The limb should be slightly flexed, so as to favor relaxation. In dislocations of the shoulder, the

extension bandage should be applied to the forearm; and in dislocations of the hip, above the knee. As the patient's mind, directed to the injury or operation, increases the contractility of the muscles, adroit surgeons often contrive some way of diverting it, at the moment when extension has been carried to a sufficient extent, as by smashing a window, communicating tidings of some awful accident, etc. When the bone returns to its socket, a "snap," like that of a lock when the key is turned, can be heard, and generally felt. The after-treatment is simply a bandage wet with cold water for a few days.

There is a *general plan* by which many, perhaps a majority, of dislocations, can be replaced by persons entirely ignorant of anatomy. This consists in *drawing the limb out of place* as much as possible, in the first place—that is, extending it, and then, while the patient's mind is diverted to something else, making a *sudden rotary motion*, during which the bone generally slips into its place. Many marvelous stories have been told of Dr. Sweet and other "natural bone-setters," who have frequently succeeded by this method, after the scientific surgeon had failed; they were called *natural* bone-setters, because they were not professionally educated.

The following remarks of Mr. Skey, on "The Reduction of Dislocations Generally," are exceedingly valuable:

"In the endeavor to reduce a dislocation, the line of traction should hold reference less to that of the socket, or surface from which the bone has been displaced, than to the more important purpose of easing it from the surface, on which it has lodged. For example, the rim of the glenoid cavity, in dislocation of the humerus, presents an obstacle to the extension of the bone in the immediate line of that cavity; but if the bone be drawn off it by extension made in any oblique direction, the instant this ridge is passed, the head will rush back into its natural cavity. So, also, in dislocation of the femur on the dorsum ilii, we do not attempt to draw the bone in a direct line with the acetabulum, but we carry it below, round its back and elevated margin, and no sooner does it reach the lower part of the rim, which is much less prominent than the upper and back part, than the muscles immediately restore it to its socket. The same rule holds in dislocation of the ulna and radius backward at the elbow-joint. I believe the exact line of extension to be much more readily determined, and, in truth, a less important subject of consideration, than it is generally deemed. I believe that if we bring the bone sufficiently downward, and place it in the *neighborhood* of the articulation, the muscles will replace it with as much ease as that which originally dislocated it.

"The bone appears, as it were, sucked violently into the socket, even

at the instant of its sustaining the greatest force of extension. Then is it that the muscles, acting with one accord, set at naught the extending power, and complete the work of reduction, in defiance of all the agents employed at the moment to prevent it. I consider that the muscles are the immediate agents of reduction, and not the surgeon, whose entire duty consists in placing the bone in a position to give them the opportunity of displaying this harmony of action, and of exercising a power, even beyond that of the mechanical agents of extension. It is this power that succeeds in forcibly drawing backward the head of the femur into its cavity, when it has fairly reached the rim of the acetabulum, notwithstanding the force employed at that instant in extending it. In the examples of the larger dislocations, I place no reliance on any of the above-mentioned efforts of manipulation, but depend almost entirely on the act of simple extension, in the fullest confidence of the disposition of the joint to right itself if the obstacles be removed."

DISLOCATION OF THE JAW.—This accident arises from yawning or gaping, or from a blow on the chin when the mouth is wide open. It may affect one or both sides. Fig. 216 represents the appearance of the mouth in a dislocation of both articulations. The mouth remains wide open, the saliva runs constantly, and there is often alarming but not dangerous pain.

Fig. 216.

DISLOCATION OF THE JAW.

Treatment.—The reduction is easily affected. Place two pieces of soft wood, or large corks, as far back between the teeth as possible, to act as *fulcrums;* then, while the head is held by an assistant, press the chin steadily *upward* and *backward.*

Another method is: place the thumbs on the back teeth, and the palms of the hands and fingers on the sides and under surface of the jaw; then press *downward* with the thumbs, and *forward* and *upward* with the hands; the thumbs must be removed as the joint slips in its place.

DISLOCATION OF THE CLAVICLE.—The collar-bone may be displaced at its sternal or scapular extremity; in the former case it is pushed forward or backward, and in the latter generally upward. Fig. 217 shows its situation when dislocated at the breast-bone. In thin persons the nature of the injury is obvious at a glance; but with very fleshy individuals the diagnosis is sometimes difficult. Moving the shoulder, however, occasions great pain; and it is with much difficulty that the patient can move it at all.

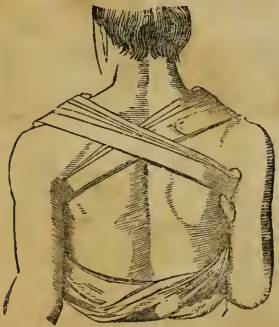
Fig. 217.

CLAVICULO-STERNAL DISLOCATION.

Treatment.—By pulling the shoulder backward and slightly outward, the collar-bone is drawn down to a level with the breast-bone, when the head will readily fall into its proper place.

To retain it in position, sur-

Fig. 218.



CLAVICLE BANDAGE BEHIND.

Fig. 219.

CLAVICLE BANDAGE ANTERIORLY.

geons have a *clavicle bandage*, which is buckled round the body and found the shoulders with a soft pad in each armpit, and another on

each shoulder. It is applied in different modes by surgeons, and incloses the arm, as it were, in a sling. A back view of it is seen in fig. 218, and a front view in fig. 219, which will enable any person of ordinary tact to adjust it successfully. The arm is previously supported in a sling.

When the scapular end is dislocated, the shoulder on the injured side is *depressed*, as compared with the other, and also *drawn inward* toward the sternum. In reducing it, the surgeon, standing behind the patient, places his knee between the shoulders, and draws them both backward, until the clavicle sinks into its place. The arm-sling and clavicle bandage are so applied as to keep the arm pressing slightly *upward* and backward. Some degree of deformity will always exist after these accidents.

DISLOCATIONS AT THE SHOULDER-JOINT.—The head of the humerus may be displaced *downward* into the axilla, *forward* under the clavicle, *backward* upon the dorsum of the scapula, and partially luxated *upward* against the outer side of the coracoid process.

Symptoms.—In the *downward luxation*, fig. 220, the head of the bone is readily found in the axilla, or resting on the lower side of the inferior costa of the scapula; there is a tumor-like projection in the armpit, and a corresponding hollow below the acromion process. The whole form of the shoulder is changed, the muscles being flattened, and the arm seemingly elongated; the elbow cannot be brought to the patient's side without great pain, and the patient inclines to separate his arm from the body and support it with the other hand. When the accident has existed for a considerable time, an effusion of lymph into the joint may occasion a *crepitus* on moving the arm, something like the *grating* sound of a fracture. In the *forward luxation*, fig. 221, the head of the humerus can be plainly felt, and generally seen upon the pectoral muscle below the clavicle. The point of the acromion process is very distinct, and beneath it is a considerable hollow. The coracoid process is on the outside of the displaced

Fig 220.

DOWNWARD LUXATION.

head, which, when the arm is rotated, can be observed to move. The elbow is thrown further back than in the downward luxation, the arm is much shortened, and there is great difficulty in moving the arm in any direction.

In the *backward luxation*, fig. 222, the projection of the head of the

Fig. 221.

FORWARD LUXATION.

Fig. 222

BACKWARD LUXATION.

bone is apparent at first sight, and when the elbow is rotated it is seen to move. It may also be felt by applying the finger just below the

Fig. 223.

REDUCTION OF AXILLARY LUXATIONS.

spine of the scapula, and the change in the axis of the limb is quite obvious. This variety of dislocation is extremely rare.

Treatment.—The general plan of reducing luxations at the shoulder joint, adopted by modern surgeons, is represented in fig. 223. The patient is placed in a recumbent position, and the surgeon, sitting before him, puts his *unshod* heel on the head of the bone in the axilla, and presses it upward, while he pulls steadily and firmly on the arm, until the head of the bone slips into the glenoid cavity. By this simple management, almost any person, although entirely ignorant of anatomy, may reduce nearly all the luxations that occur at this joint, by taking the case very soon after the accident. If greater force is required than one person can exert, he may be assisted by others pulling behind him, by means of additional straps or bandages placed upon the arm. If this plan fails, greater force can be brought to bear by the method represented in fig. 224. The patient is seated in a chair, and

Fig. 224.

EXTENSION AND COUNTER-EXTENSION.

counter-extending bandages so applied as to let the arm pass through them. For the *extending* bandage, a wetted roller, placed around the arm above the elbow, with straps or slips of cloth attached, will answer The arm is then raised so that the elbow is a little above the horizontal line with the shoulder, and, while in this position, two or more assistants make gradual and steady extension upon it, an equal amount

of force being employed in producing counter-extension at the same time. After the strain upon the muscles has been continued for some time, the surgeon, resting his foot on the chair, pushes his knee into the axilla and presses up the head of the bone, while he presses down on the acromion with one hand; making also slight rotation upon the arm.

There is another method by which a majority of *recent* dislocations can be easily replaced without waiting for the regular surgeon. Place the patient in a chair, fig. 225, extend the luxated arm as far as possi

Fig. 225.

REDUCTION OF RECENT LUXATIONS.

ble from the side, then, with the knee in the axilla—the foot being supported on a chair, and the heel raised so as to press the knee upward—grasp the humerus above the elbow with the hand, pressing down upon the shoulder at the same time. The pulley and counter-extending bandage, seen in the cut, may also be employed if necessary.

In the *forward luxation*, the extension is to be made obliquely downward and slightly backward. The resistance is usually stronger than in axillary dislocations; hence extension must be kept up somewhat longer. When the head of the bone is observed to move, the surgeon should place his knee or heel against it, and press it backward into its cavity. In other respects the management is the same as for the preceding variety.

In the *backward luxation* the reduction is easy. After the shoulder is fixed, gradual extension is made directly outward, the head of the bone being thus moved slowly forward into the glenoid cavity. This dislocation has been replaced by merely raising the arm, and turning the hand to the back of the head.

After reduction, the arm should be carried in a sling for several days, and all motion at the joint prevented by suitable bandages.

Dislocations at the Elbow.—Injuries at this joint are very frequently complications of dislocation, fracture, and laceration. Surgeons distinguish five varieties of dislocation. *Both bones* of the forearm may be pushed *backward*, or to *one side*; the *radius* may be displaced forward; the *ulna* alone may slip *backward* over the condyle of the humerus; and the *radius* alone may slip from its connection *at* the elbow joint.

Symptoms.—When the *radius* and *ulna* are both dislocated *backward*,

Fig. 226.

ELBOW LUXATION BACKWARD.

fig. 226, the posterior projection is very prominent. The olecranon process is above the external condyle, and a deep hollow may be felt on each side of it; while in front, under the tendons, the condyles appear like hard tumors. The hand and forearm are supine, and cannot be entirely turned.

Fig. 227.

LATERAL DISLOCATION OUTWARD.

In the *lateral* dislocations of *both bones*, whether inward or outward, they are driven more or less *backward*. In the *outward* dislocation, fig. 227, the projection of the ulna is still greater; the coronoid process is fixed at the external condyle; and the flat head of the radius forms a projection outside and behind the elbow, with an abrupt cavity above it. In the *inward* luxation, fig. 228, the head of the ulna is displaced behind or over the internal condyle, projecting in

Fig. 228.

LATERAL DISLOCATION INWARD.

that direction, while the external condyle is made equally prominent on its side by the radius occupying the place of the ulna.

When the *ulna* is dislocated *backward*, the olecranon can be easily felt behind the humerus; the arm cannot be straightened, nor can it be flexed to more than a right angle; the forearm and hand are also twisted inward.

In dislocations of the *radius forward*, fig. 229, the forearm is more or less bent, but in attempting to flex it further, it is suddenly stopped before it gets to a right angle; the elevated head of the radius bears against the fore part of the humerus, where, if a finger be pressed into the bend of the arm, it may be felt moving. The hand is also in a state of pronation.

In the *backward* dislocation of the *radius*, fig. 230, the head of the bone may be seen and felt behind the external condyle of the humerus; the arm is nearly straight, and cannot be flexed; the hand is pronate, and cannot be turned.

Treatment.—The *first* variety is easily reduced. The surgeon places his knee on the inner side of the elbow, pressing chiefly on the displaced bones so as to keep them from bearing on the end of the hu-

Fig. 229.

FORWARD LUXATION OF THE RADIUS.

Fig. 230.

BACKWARD LUXATION OF THE RADIUS.

merus, and to bring the coronoid process out of the posterior fossa, so that it can pass over the condyles, while the arm is *bent* slowly and steadily with considerable force. This form of luxation can generally be reduced with the aid of suitable hot water relaxant processes, a long time after the accident.

The *second* variety is mainly reduced by bending the arm over the surgeon's knee, as in the preceding case; less pressure, however, is usually required, as the bones do not require the same separation from the humerus.

The *third* variety is replaced still more readily by the same general plan. Here the *bending* of the arm is the principal part of the operation, the fixed radius acting like a lever to push the humerus back into its place on the ulna.

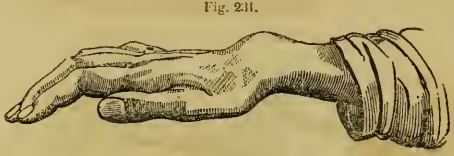
To reduce the *fourth* variety, the surgeon takes the patient's hand, as in "shaking hands," and makes steady extension, while his other hand is pressed strongly on the ulnar side of the head of the radius, pushing it *outward* and *upward*. It will facilitate the reduction to have the arm slightly bent.

In the *fifth* variety *extension* is to be made upon the radius, and *counter-extension* upon the humerus, while firm pressure is made on the head of the bone, until it slips into its place. One assistant may make the extension, another the counter-extension, and the surgeon make the pressure and direct the movements of the bone.

DISLOCATIONS AT THE WRIST.—Six varieties of luxation occur at this joint. The radius and ulna may together be displaced forward or backward, or either of them separately in either direction.

Symptoms.—When *both bones* are displaced *forward*, their projection is seen and felt *under* the carpus. This accident is caused by falling on the palm of the hand. When *both bones* are displaced *backward*, they project *over* the carpus; the carpal bones are thrown for-

Fig. 231.



BACKWARD LUXATION AT THE WRIST.

ward and upward under the flexor tendons, in front of the forearm. This luxation is represented in fig 231. These luxations may be dis-

tinguished from *sprains*, or *strains*, by the more sudden occurrence and more uneven appearance of the swelling.

When the *radius alone* is displaced, the *external* or *thumb* side of the hand is backward, and the opposite side inward or forward, the extremity of the radius may also be seen to form a prominence in the front of the wrist. When the *ulna alone* is detached, which more frequently happens, the connecting ligament is necessarily ruptured; the hand is twisted, the bone projects at its back, from where it may be easily pressed down; but when the pressure is removed, the deformity will reappear.

Treatment.—The process of reduction is similar when both bones are displaced either forward or backward. The surgeon holds the hand of the patient in one of his, and with the other supports the forearm, while an assistant holds the arm at the elbow, and keeps that joint slightly flexed. When sufficient extending and counter-extending force is applied, the bones are drawn into place by the contraction of the muscles. Compresses should then be placed upon the wrist, and secured by a roller which should inclose the limb from the tips of the fingers to the elbow; after which a splint should be added, and the forearm suspended in a sling. The same treatment precisely is required when the radius alone is dislocated. To reduce the dislocated ulna, it is only necessary to press the ulna down in its proper cavity at the side of the radius, and retain it there by compresses, bandages, and splints. The splints should be well padded, extend along the forearm in a line with the back of the hand, and be well secured with a roller.

Carpal and Metacarpal Dislocations.—Displacements of the bones of the wrist are extremely rare; but when they do occur, the hand is to be extended, and the bone pressed down into its place, and then secured by proper compresses and bandages.

Luxations may occur at any of the phalangeal joints, and the smaller bone may project over or under the larger, constituting the *posterior*

Fig. 232.

POSTERIOR PHALANGEAL LUXATION.

luxation, fig. 232, or the *anterior*, fig. 233. The nature of the accident will be readily distinguished at the first sight.

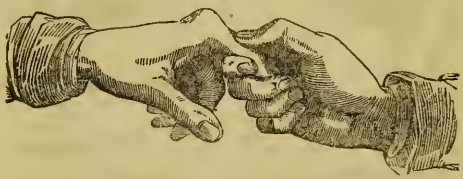
Treatment.—The general plan of reducing dislocated fingers and

Fig. 233.

ANTERIOR PHALANGEAL LUXATION.

toes is as follows: The surgeon places his thumb at one of the divided extremities, and his finger at the other, fig. 234, then makes extension, while the joint is moderately flexed. The reduction will usually be

Fig. 234.



REDUCTION OF DISLOCATED FINGERS AND TOES.

easily affected; but if a long time has elapsed since the accident, the extension may require to be kept up perseveringly for a considerable length of time. In such cases, a piece of tape is usually employed; it is fixed to the finger by what is called the "clove-hitch," fig. 235, and to this the extending force is applied.

Fig. 235.

CLOVE-HITCH.

The thumb, which is seldom dislocated, is with more difficulty reduced. It requires great extending force, during which it should be flexed toward the palm of the hand. It should also be well covered with wet tape before the clove-hitch tape is applied.

Dislocations at the Hip-Joint.—The head of the femur may be displaced *upward* on the dorsum of

the ilium, fig. 236, or *downward*, into the foramen ovale, fig. 237, or

Fig. 236.

UPWARD LUXATI N.

Fig. 237.

DOWNWARD LUXATION.

Fig. 238.

BACKWARD LUXATION.

Fig. 239.

FORWARD LUXATION

backward, into the ischiatic notch, fig. 238, or *forward*, on to the pubes, fig. 239, in which case it is also thrown upward. The first variety is the most frequent, being the result of violence in an upward and outward direction.

Symptoms.—In the *first variety* the femur rests on the concave side of the pelvis; the limb is shortened from an inch and a half to two inches; the knee closely approximates, yet does not touch that of the other leg; the foot is turned inward; the thigh can be bent over the opposite one, and the round head of the bone can be felt moving upon the ilium. Fig. 240 represents the appearance of the limb while the patient is in the standing position.

In the *downward* dislocation, the head of the bone can be felt by examining the inside of the thigh, especially in thin persons; the leg of the affected side is about two inches longer than the other; the trochanter is less prominent than on the sound side; the body is bent forward; and when the patient stands erect, the knee projects in advance of its fellow, and is kept wide apart from it; the foot, though separated, is turned neither in nor out, fig. 241.

Fig. 240.

UPWARD LUXATION.

Fig. 241.

DOWNWARD LUXATION.

In the *backward* luxation, the head of the femur can rarely be felt; the trochanter will be found further back than natural; the foot and knee are turned inward; the knee is slightly flexed and advanced forward; the heel is raised, and the ball of the great toe rests on the base of the other great toe, and the limb is shortened from half an inch to an inch, fig. 242.

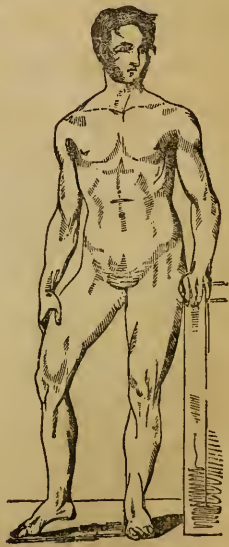
In the *forward* and *upward* luxation, the head of the bone is at once discovered in front, and a little above the level of Poupart's ligament, which circumstance distinguishes the case from a fracture of the neck of the femur; the limb is shortened from one to one and a half inches; the knee is everted; the foot and knee cannot be rotated inward, but the thigh can be flexed, bringing them forward. In the erect position this patient, fig. 243, contrasts strikingly with the preceding one.

Treatment.—As the muscles concerned in this articulation are large, and their resistance powerful, it is always prudent to relax the whole

Fig. 242.

BACKWARD LUXATION.

Fig. 243.

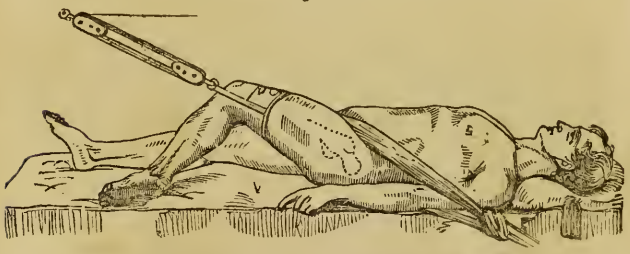


FORWARD LUXATION.

muscular system before attempting reduction. An admirable and very pleasant method of doing this is to envelop the patient in the warm wet-sheet pack, placing hot bottles to his feet and sides, and covering him well with bedding, the affected limb being sustained in an easy position by pillows; while in the pack the patient should drink abundantly of warm water, and after being sufficiently relaxed for the operation, he should be kept well covered in flannel blankets to retain the heat and moisture, and prolong the relaxation. All of these hip dislocations can frequently be reduced by the *rotary*, or "Sweet plan;" but surgeons have a specific and surer method for each variety.

In the *upward* displacement the patient is laid on a table, or placed

Fig. 244



REDUCTION OF UPWARD LUXATION.

on a board, fig. 244, covered with a quilt or blanket; a strong *counter-extending* strap is passed between the legs—a sheet split in two, and folded into the width of four or five inches, will answer; this is passed up before and behind the hip; so placed as to press upward on the perineum, at the inside of the dislocated limb, and fastened to some unyielding point. A wet bandage, of eight or ten turns, is applied around the limb, above the knee, and to this the *extending* straps are attached. These are to be drawn upon by the assistants in the direct line of the limb; or, what is better, attached to a pulley, so stationed that the extension may draw in a direct line with the fastening of the counter-extension. The force is to be steadily increased as long as the patient can well bear it, then held stationary for a few moments, until he ceases to complain, then again increased, and so continued until the head of the bone reaches the edge of the socket, when the surgeon rotates the limb a little, and elevates the head until it enters the acetabulum. The *snapping* noise, as the head of the femur slips into its socket, when the extension is made by manual force, is not always

heard when the force is more steadily and gradually applied by the pulleys; hence it is sometimes necessary to ascertain the fact of its replacement by actual measurement; and until this point is settled the extension should not be abated. In some cases the head of the bone is held fast over the edge of the socket; to prevent this a towel or handkerchief may be placed round the thigh, as high up as possible, and the bone lifted by it at the proper moment.

The above is the plan approved and recommended by the best "standard authorities;" but, after all, it is probably neither the best method, nor founded on true mechanical nor physiological principles. A very different and much more easy plan for both surgeon and patient, which dispenses with the torture of traction entirely, was practiced successfully many years ago by the late N. Smith, of Yale College, and has since been adopted by Dr. Cartwright, of Natchez, and recently explained by Dr. Reid, of Rochester. It is as follows: Place the patient on his back, *without fastenings of any kind*, the leg flexed on the thigh, and then strongly adducted—carried inward; in this condition the adduction is continued by flexing the thigh on the pelvis, until the knee is as high as the umbilicus. This plan is predicated—correctly, I think—on the idea that the distention of the small muscles constitutes the main obstacle to reduction, instead of the contraction and resistance of the large ones.

The reduction of the *downward* luxation is much easier than that of the upward. The patient is placed on the back, the thighs sep-

Fig. 245.

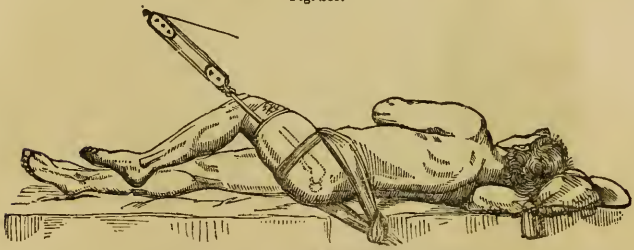
REDUCTION OF DOWNWARD LUXATION.

arated, fig. 245; a folded cloth is placed over the perineum, so that when the ends are drawn upon the force will bear against the inner

and back surface of the bone. Another strong band is passed transversely around the pelvis, above the acetabulum, the front end passing over the former strap, so as to give to it a more upward direction. The force is then applied, as in the former case, and as the head of the bone begins to rise, the surgeon passes his hand under the opposite leg, and, seizing the ankle of the affected one, brings it gently, yet firmly, toward the other; by all of which movements combined, it is brought into its socket.

The third variety, dislocation *backward* into the *ischiatic notch*, is the most difficult of all to reduce. The patient is placed on his sound side

Fig. 246.



REDUCTION OF BACKWARD LUXATION.

on a board or table, fig. 246, with the affected thigh drawn over the middle of the other. *Extension* and *counter-extension* are made in the same way as in the first variety, with the addition of a strap around the upper part of the thigh, which is carried over the shoulders of an assistant, to raise the head of the bone at the commencement of the operation, out of the notch, or impart a lifting direction to the extending force. The surgeon may also press the trochanter forward with his hand.

In reducing the *forward and upward* luxation, the patient is placed

Fig. 247.

REDUCTION OF FORWARD LUXATION

on his sound side, the *counter-extending* force fixed somewhat in front of a line with the body, the point of extension being as much behind, fig. 247. The forces are intended to be so arranged as to draw the limb *backward* as well as *downward*. The lifting strap is to be employed as the extension progresses, an assistant pressing down on the pelvis, as the surgeon raises the head of the femur over the pubis and edge of the acetabulum.

Fig. 248.

OUTWARD LUXATION OF PATELLA.

Dislocations at the Knee-Joint.—The *patella* may be displaced *outward*, *inward*, or *upward*; and the *tibia* may be dislocated from the femur *forward*, *backward*, or to *either side*; the lateral displacements, however, are only partial.

Symptoms.—The *outward dislocation* of the patella, fig. 248, is more frequent than the *inward*; but in either case the knee is partially flexed, and the joint immovable; the patient also complains of a sickening pain in it. The *upward* displacement, which is attended with rupture of the ligament, is perfectly obvious to the sight.

In the *forward* dislocation of the *tibia*, fig. 249, the head of the bone is seen and felt above the

Fig. 249.

LUXATION FORWARD.

Fig. 250.

LUXATION BACKWARD

front or the condyles, these being perceived in the popliteal space. There is also numbness of the foot, from pressure on the nerves and popliteal artery.

In the *backward* luxation, fig. 250, the limb is sensibly bent, and somewhat shortened; the condyles project; and the flexure of the limb is backward instead of forward, the foot being drawn forward.

In the *lateral* displacements one condyle of the femur rests on the head of the tibia, where the other condyle belongs, the displaced one projecting externally or internally, as in fig. 251 and fig. 252.

Fig. 251.

LATERAL LUXATION EXTERNALLY.

Fig. 252.

LATERAL LUXATION INTERNALLY.

Treatment.—To reduce the *outward* dislocation, the patient is placed in a recumbent posture, the limb raised by the heel, to relax the extensor muscles, and then the displaced bone is pressed down to its place, the force being applied to the edge most distant from the joint. The *upward* dislocation is easily reduced, but with difficulty kept in its place, on account of the rupture of the ligament. The *roller*, skillfully applied from the toes to the groin, will generally answer; and this may be assisted by a straight splint fastened under the whole length of the leg.

All the varieties of luxated tibia are reduced by the same plan, which is chiefly that of simple extension. The pelvis is fixed, and a bandage placed round the ankle by which the extension is made. While the assistant pulls upon the ankle, the surgeon presses upon the separated head of the bone with his hands.

Dislocations at the Ankle.—The ankle joint may be displaced *inward*, *outward*, *forward*, or *backward*. The accident is frequently complicated with fracture.

Symptoms.—In the *inward* dislocation, fig. 253, which is the most common, the foot is turned out, and a tumor is formed by the internal malleolus pressing strongly against the skin, which seems ready to burst; the joint, however, is still movable. A depression may generally be felt about three inches above the ankle, in which case the fibula is fractured. The *outward* dislocation is known by a corresponding deformity on the other side. In the *forward* dislocation, fig. 254, the foot is shortened, the heel elongated, and the toes point downward. The *backward* dislocation, which rarely occurs, is manifest to the sight.

Treatment.—The manner of reduction is essentially the same in all cases. An assistant, holding the foot by the heel and toes, flexes the leg to a right angle with the thigh, and, while the thigh is held fast by another assistant, just above the knee, makes extension at the ankle, the surgeon at the same time pushing the end of the tibia into its place.

Fig. 253.

INWARD LUXATION.

Fig. 254.

FORWARD LUXATION.

Splints and bandages are necessary, and wet cloths must be frequently applied, as there is usually considerable inflammation.

Dislocations of the Foot.—When the tarsal or metatarsal bones are displaced, the nature of the injury is obvious. Reduction is effected by extending the foot and pressing upon the displaced bone at the same time. Compresses and bandages are necessary.

Dislocations of the toes are managed precisely in the same way as dislocated fingers.

CHAPTER X.

FRACTURES.

Technology.—A fracture is called *transverse* when the bone is broken directly across; *longitudinal* when it is split lengthwise; and *oblique* when broken in other directions. When the fracture is not accompanied with an external wound, it is called *simple;* when the soft parts are so lacerated that the fractured bones protrude, it is termed *compound;* when occurring in connection with a dislocated joint, it is termed *complicated;* and when the fractured bone is divided into several fragments, it is called *comminuted.*

General Management of Fractures.—Although a few general principles are applicable to all cases, so great is the diversity of circumstances attending these accidents, that much must be left to the sound judgment and mechanical skill of the operator. A great variety of splints, bandages, and other apparatus have been invented, all intended to keep the injured parts in contact until the broken parts of the bone unite.

The process of re-union is as follows: Coagulable lymph, fibrin, and blood, thrown out by the vessels of the part, form a material which slightly glues, as it were, the bones together soon after the injury; in the next place, a *provisional cartilage* is formed around the parts like a capsule, firmly supporting them; this gradually hardens, by ossific deposits, into a bony ring, called the *provisional callus*, which binds the parts still more firmly together. After this the proper substance of the bone is formed, the ossific process going on for several months or a

year; and when it is completed, the provisional support is removed by absorption.

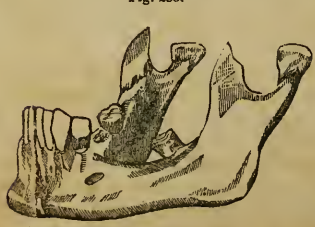
The period at which the reparative process commences and terminates, varies with the structure of the bone, age, and habits of the individual, etc. The provisional union ordinarily begins between the *sixth* and *tenth* day, and is completed in *four* to *six* weeks. The sooner, however, that fractures are adjusted, the better; and about the *sixth* or *seventh* day, when the "knitting" may be expected to commence, the part should be examined and accurately adjusted, if need be; after which it only requires to be kept quiet. Great care must be taken to have the part easy and quiet from the *sixth* to the *twelfth* day —in old persons for eight or ten days longer—after which slight motion may be allowed. The symptoms of the provisional ossification, "knitting of the bone," are *itching* and *prickling* sensations in the part.

Fractures of the Cranium.—Any of the bones of the skull may be *crushed*, the fracture extending in different directions from a central point; or *cracked* through one or both plates in a straight line. The skull bone may also be bent without being fractured. In the case of fracture, a *crepitus* can be felt through the skin; and if any portion of bone is driven in upon the brain, symptoms of *compression* will be present.

Treatment.—All the constitutional and local measures heretofore recommended for compression must be employed in conjunction with the appropriate treatment for any degree of inflammation that may attend. But if the symptoms of compression continue after the inflammation has subsided, the depressed bone must be elevated by trephining, which should only be attempted by a skillful anatomist.

Fractures of the Nose.—These accidents, though occasionally severe, are not usually dangerous, and their nature is apparent from the resulting deformity. They can be adjusted by pushing out the depressed bone by a silver catheter, or some similar instrument, introduced within the nostril, while the fingers support them on the outside.

Fig. 255.



FRACTURE OF THE LOWER JAW

Fracture of the Lower Jaw.—The accident commonly occurs at the middle of the chin. fig. 255, although it may take

place in any part. The crepitus felt on moving the bone will determine the exact locality of the fracture; a depression may also be felt at the place.

Treatment.—The adjustment is effected by elevating or depressing until all the teeth are arranged properly with respect to each other and to those of the upper jaw. Should one of the condyles be displaced at the same time, it must be *reduced* previously to *setting* the broken bone. The jaw must be secured—the mouth being kept shut—by means of a strip of adhesive plaster, two and a half inches wide ex-

Fig. 256.

ADJUSTMENT OF FRACTURED LOWER JAW.

tending from ear to ear over the chin. The plaster should be spread on fine leather, as calf-skin; and over this a bandage of strong muslin, two yards long and two and a half inches wide, split from each end to within six inches of the middle, is to be applied. A hole is made in the center for the chin; the two lower ends are brought up over the top of the head, and the two upper ends are carried horizontally round to the back of the neck; several turns with each pair are then made, over and around the head, where they are fastened at their ends and also at each crossing. In the absence of adhesive plaster the compress and roller, fig. 256, will answer all purposes. The compress under each ramus is held by an assistant until fastened by the first turns of the roller, which is an inch and a half in length and four or five yards long; the first vertical turns are repeated over each other several times, followed by the horizontal ones above the ear over the occiput and forehead, and, lastly, several turns below the ear and lip. Pins or stitches are applied wherever the roller crosses or changes direction.

Fractures of the Scapula.—When the body of the bone is *fractured across*, there is scarcely any deformity, but a crepitus is easily recognized on pressure. The only surgery required is a bandage so applied as to restrain those motions of the chest and shoulders which affect the fractured bone.

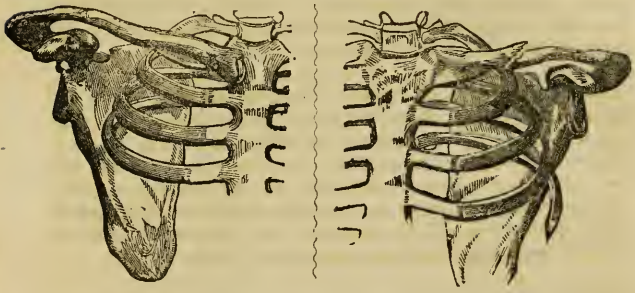
When the *acromion process* is fractured, a depression is manifest; the separated portion of bone is drawn downward and forward; and, on pressing the arm upward, a crepitus may be felt. The adjustment consists in pressing the head of the humerus up, by which the fragment is carried to its place, and securing it by the clavicle bandage, *omitting* the pads or compresses under the arm.

When the *neck* of the scapula is broken, the head of the humerus can be felt in the axilla, as in dislocations, and the acromion appears very conspicuous from the depression beneath. The fracture may be distinguished from dislocation by the crepitus perceived on pushing the arm upward and outward, with the thumb placed on the coracoid process, and the fingers in the axilla. The parts can easily be replaced and held in apposition by the clavicle bandage and a wedge-shaped pad under the arm.

Fracture of the Clavicle.—A fracture of the collar-bone, which is usually oblique, and occurs near its middle, fig. 257, is readily detected by passing the finger along the edge of the bone. Crepitus occurs on moving the shoulder.

The adjustment and dressing are essentially the same as in the case of a dislocated clavicle at its scapular extremity. The surgeon, placing

Fig. 257.



FRACTURED CLAVICLE.

his knee between the shoulders, draws them both back until the parts of the broken bone come into their proper position, and, while the shoulders are kept back and the arms down, by suitable apparatus, or the hands of assistants, the bandage is applied.

Fracture of the Sternum.—The breast-bone is never broken, except by great force directly applied. The accident is manifested by a depression at the injured point, and pain and crepitus which attend the movements of the thorax in respiration. Its adjustment requires the roller around the chest, so applied as to stop all motion; the respiration being carried on *wholly* by the abdominal muscles.

Fracture of the Ribs.—The ribs may be fractured at their vertebral or sternal extremity. The former case is frequently accompanied with dislocation. The latter, though generally called "dislocation of the cartilage," is really a *rupture*, and a rupture is much more like a fracture than a dislocation. A depression and crepitus may be detected by passing the finger along the rib. If the cartilage is torn from the rib, this bone will project.

Treatment.—In a majority of cases a broad roller, applied around the chest so firmly as to prevent all motion of the intercostal muscles, will be sufficient. When a rib projects, the compress must be applied; and tapes, carried over the shoulder and fastened to the roller, near the spine and sternum, are necessary to prevent it from slipping

down. In extensive or complicated fractures, stiff adhesive plaster, or even gum-shellac cloth, or wetted pasteboard, fitted to the part, are useful additions. Preceding the operation of pressing the bones or cartilages down to their proper position, the patient should in all cases be directed to take a rather deep inspiration, and also to hold his breath as long as possible during the adjustment.

Fractures of the Spine.—The transverse processes of the vertebræ may be broken off without serious inconvenience, and may be treated like fractured ribs. When the body or articulating surface is fractured, the injury is irremediable. Fractures about the fourth vertebræ of the neck cause instant death; above the lumbar vertebræ, they are fatal in a few days; and when these are fractured, the patient seldom survives long. Paralysis affects all the parts whose nerves are derived from the spinal cord *below* the point of injury.

Fractures of the Pelvis.—These are only produced by extreme violence, of a *crushing* kind. They are always dangerous. The patient should be placed in an easy horizontal position, and handled as little as possible. The nature of the injury will aid the diagnosis as to the particular point of fracture; and generally crepitus can be felt by placing the hand on the crest of the ilium, while motion is made at the spine or lower extremities. A roller around the pelvis, with a strap under the nates, and attached to a pulley over the bed, so that the pelvis can be raised without effort on the part of the patient, constitute the principal surgery.

Fractures of the Humerus.—This bone is usually fractured near its middle, but may be broken near either extremity; when fractured near the neck, the injury is not easily distinguished from dislocation.

Symptoms.—A fracture in any part of the *shaft*, as in fig. 258, may be detected by the obvious deformity; the parts of the bone are drawn out of line; the patient experiences pain at the injured point; he is unable to move the limb; and a crepitus can be noticed by rotating the lower portion of the arm, while the upper part is fixed. The direction and extent of the fracture may be ascertained by tracing from the condyles upward with the finger.

Fracture of the *neck*, fig. 259, seldom occurs except in old persons. By rotating the arm below the elbow, a crepitus will be felt. The roundness of the shoulder is not diminished, as in dislocation.

Fig. 258.

FRACTURED SHAFT.

Fig. 259.

FRACTURED NECK.

Fractures near the *condyles*, fig. 260, are liable to be mistaken for dislocation of the forearm. When the fracture is *above* the condyles,

Fig. 260.

FRACTURE ABOVE THE CONDYLES.

the arm will be shortened; and in all cases the grating of the broken pieces can be felt; the motions of the elbow are but little impeded in fracture, which is not the case in dislocation.

Treatment.—When the *shaft* has been broken, sufficient extension must first be made; the fractured arm is next to be accurately adjusted, so that the appearance and length of the limb will compare well with its fellow; the roller is then to be applied—the parts being held in juxtaposition, meanwhile, by an assistant—rather loosely from the elbow to the shoulder; two or four splints—four are better—about a quarter of an inch in thickness, are then placed at convenient distances, so as nearly to inclose the arm; the roller is then continued down over the splints, and back and forward, until the splints are sufficiently secured; the forearm and hand are lastly to be suspended in a sling from the neck.

When the *neck* of the bone is broken, a wedge-shaped pad in the axilla is necessary; the shellac or pasteboard splint should be applied on the outside and over the top of the shoulder, and the whole fastened by the clavicle bandage.

In the case of fracture *above the condyles*, after the proper adjustment, the roller is to be first applied loosely around the arm and forearm, and then over two angular splints, which should reach nearly from the shoulder to the wrist, one being applied on the front and the other on the back of the arm.

When the *condyles* themselves are fractured, the separated portions of bone are to be pressed together, and a splint or cloth cap applied, reaching to the wrist, preceded, of course, by the roller. Some degree of deformity will always exist after these injuries.

Fig. 261.

OLECRANON FRACTURE.

FRACTURES AT THE ELBOW JOINT.—Fig. 261 represents the *olecranon process* broken off and drawn up on the back of the arm, attended, of course, with a rupture of the ligaments. The patient can bend the arm easily, but cannot straighten it. There is also great pain at the point of injury.

Treatment.—The inflammation must first be subdued; then the arm is to be bandaged rather tightly from the ends of the fingers to the elbow; the broken end of the bone is next to be brought to its place, and included in the turns of the roller, which should be continued half way up the arm; the roller is then turned back and passed above, and the elbow joint about a dozen times in the form of the figure 8; after it is continued upward, including the whole arm. Lastly, a strong splint is to be placed in front of the joint over the bandage to prevent flexion.

The coronoid process is sometimes fractured separately, attended necessarily with a backward luxation. It impedes the bending of the elbow. Its adjustment only requires the flexure of the forearm, and its retention in that position by proper bandages and splints. This fracture, and also the two preceding, unite by a ligamentous, instead of bony connection.

FRACTURES OF THE FOREARM.—Both bones may be fractured together, or either of them singly. Fig. 262 represents a fracture of *both bones*, with a view of the interosseous muscles, whose contraction tends to draw the bones together, so as to prevent the circular movement of the radius round the ulna.

Fig. 262.

FRACTURE OF THE ULNA AND RADIUS.

When the *radius* alone is fractured, fig. 263, the depression and crepitus readily points out the place of injury; and the same symptoms on the opposite side of the arm denote a fractured *ulna*, fig. 264. The surgeon, in all these accidents, has only to trace the bones up from the wrist, until the finger comes to the divided part, when a depression will be felt; and by fixing the elbow, and rotating the wrist, the crepitus will be experienced.

The *lower end of the radius* is sometimes fractured near the wrist, where the hand is distorted, and appears very much like a dislocation, fig. 265;

Fig. 263.

FRACTURE OF THE RADIUS.

but, on moving the hand, the styloid process of the radius moves with it, which is not the case when the bone is dislocated.

Fig. 264.

FRACTURE OF THE ULNA.

Treatment.—In the first variety—*fracture of both bones*—the most important point in the treatment is to keep the bones apart. After ad-

Fig. 265.

FRACTURE OF LOWER END OF THE RADIUS

justing the bones, by making the necessary extension at the wrist, the arm should be bent at a right angle, with the thumb midway between pronation and supination; the loose roller is to be applied, and this, followed by two splints, one on the inside, and the other opposite, which should be convex on the side next the arm, and well padded with cotton; the splints are, lastly, to be secured by a roller extending from the hand to the elbow.

When the *radius* alone is fractured the hand may hang loose, and thus exert some degree of extending force on the bone. When the *ulna* alone is broken the hand and forearm should be kept in the same line, and the splint and bandage should extend to the ends of the fingers.

The splints should in all these cases, as a general rule, be worn ten or twelve days; but the compress and bandage should be continued a week or two longer.

The only point of difference in the treatment of a fracture at the lower end of the radius, is in so adjusting the pads and compresses that they may aid in keeping the two bones apart and the fractured portions together at the same time. Though passive motion may be employed in three or four weeks to prevent anchylosis, no great exertion should be made by the hand for several months.

Fractures of the Wrist, Hand, and Fingers.—These accidents require a broad splint fitted to the front of the wrist and hand, with the ends slit for the fingers, the parts being well padded to secure equal pressure, and the splints fastened by the roller. Splints may also be adjusted to the sides and back of the fingers. A single finger bone may be fixed with four small splints secured by tape.

Fractures of the Thigh.—The *neck* of the *femur* may be fractured *within* or *without the capsular ligament*; the *trochanter major*

may be broken obliquely; and the *shaft* at or near the *trochanters*, in its *middle*, or near the *condyles*.

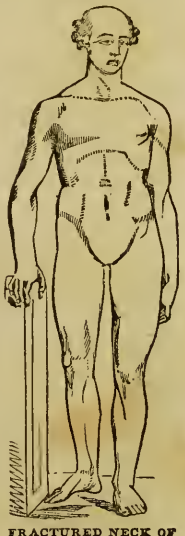
Symptoms.—The fracture *within* the ligament, as represented in fig. 266, generally unites by a ligamentous substance, or a double joint is formed, and the limb permanently shortened.

Fig. 266.

FRACTURE WITHIN THE CAPSULE.

The accident is known by the inability to stand on the leg, the limb being shortened one or two inches, the knee and foot turned out, and the heel inclining to rest on the other limb above and behind the malleolus, fig. 267. Severe pain is felt on moving the limb, and a crepitus will be recognized on rotating it. Sometimes, however, the shortening of the limb does not occur until several hours after the accident; and in some rare cases it is said the foot *turns in* instead of being everted.

Fig. 267.



FRACTURED NECK OF THE FEMUR.

In fracture *outside* the ligament, the pain and swelling are greater—often extreme; the limb is not materially shortened nor everted, and crepitus is more easily felt.

When the bone is fractured *obliquely* through the *trochanter major*, the leg is everted, a little shortened, and a fissure can be felt between the shaft and trochanter.

When the *shaft* is broken just *below* or *near* the *trochanters*, the psoas and internal iliac muscles draw the superior fragment of bone upward and forward, causing great pain and deformity.

When the *shaft* is broken *between* the *trochanters* and *condyles*, the deformity, crepitus on extension or rotation, and inability to bear weight upon the limb, determine the nature of the case. If the fracture be *oblique*, the limb will be much shortened by the broken parts slip-

ping by each other; and this *may* be the case also in *transverse* fractures. The *condyles* of the femur are seldom broken except in old persons, and the accident is not unfrequently fatal.

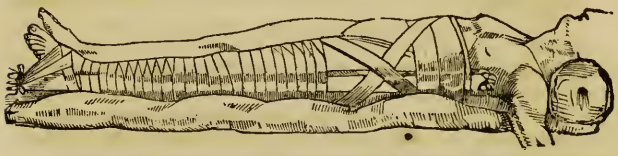
Treatment.—Sir Astley Cooper, in speaking of the various methods for treating fracture of the neck of the femur *within* the capsular ligament, says: "Baffled in all our attempts at curing these cases, and finding the life of the patient occasionally sacrificed under the trials made to unite them, I should, if I sustained this accident in my own person, direct that a pillow should be placed under the limb throughout its length; that another should be rolled up under the knee, and that the limb should be thus extended until the pain and inflammation had subsided. I should then daily rise and sit in a high chair, in order to prevent a degree of flexion which would be painful; and, walking with crutches, bear gently on the foot at first, then gradually more and more, until the ligament became thickened, and the muscles increased in their power. A high-heeled shoe should be next employed, by which the halt would be much diminished. Our hospital patients, treated after this manner, are allowed in a few weeks to walk with crutches; after a time a stick is substituted for the crutches; and in a few months they are able to use the limb without any adventitious support."

Fracture of the neck *outside* the capsular ligament, admits of ossific union, though this does not always result. Sir Astley's plan of adjustment, as simple and practical as any, is thus described: "In the treatment of this injury, the principles are to keep the bones in approximation, by pressing the trochanter toward the acetabulum, and to preserve the length of the limb. The foot and ankle of the injured side should be firmly bound with a roller to the foot and ankle of the other leg [which is to be kept straight], and thus the uninjured side will serve as a splint to that which is fractured, giving it a continued support, and keeping it extended to the proper length. A broad leathern strap should also be buckled around the pelvis, including the trochanter major, to press the fractured portions of the bone firmly together; and the best position of the limb is to keep it in a straight line with the body."

Mr. Liston's plan, applicable to all cases, as detailed in his own language, is as follows: "Whether the fracture is suspected to be within or without the joint, either entirely or partially, the broken surfaces are to be brought in contact and retained immovably in apposition for a time sufficient to admit of union. The limb is put up in apparatus not requiring removal, and but little adjustment. This can be effected only in the extended position. Many splints, with foot-boards, straps, and screws, are intended for this purpose, some to be attached to the in-

jured limb, others to the sound one; but the apparatus which is most simple, easily to be procured *at all times and in all circumstances*, is at once the best and most efficient. This is a straight wooden board, not so thick as to feel cumbrous, and not so thin as to be pliable or easily broken; in breadth, corresponding to the dimensions of the limb; in length, sufficient to extend from two, three, or four inches beyond the heel, to near the axilla; deeply notched at two places at its lower end, and perforated by two holes at the upper. The splint, well padded, is applied to the extended limb, the ankles being protected by proper adjustment of the pads. The apparatus is retained by bandaging, fig. 268, a common roller is applied round the limb, from the toes to near the knee, so as to prevent infiltration, which would otherwise follow

Fig. 268.



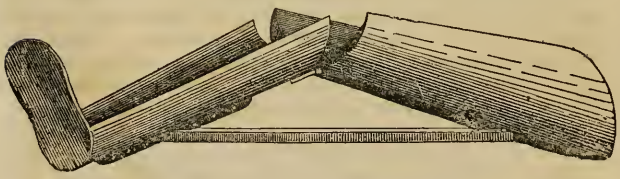
ADJUSTMENT OF FRACTURED NECK OF THE FEMUR.

pressure above by the rest of the apparatus. The splint is then attached to the rest of the limb by involving both in a roller from the foot to above the knee; and, in doing this, the bandage, after having been turned round the ankle, should be passed through the notches, so as to be firmly attached to the end of the splint, thereby preventing the foot from shifting. A broad bandage is applied round the pelvis, over the groin and down the thigh, investing all that part of the limb left uncovered by the previous bandaging. A broad band, like a riding-belt, is fastened round the pelvis, so as to bind the splint to the trunk, and thereby keep the broken surfaces of the bone in contact. A large handkerchief or shawl is brought under the perineum, and its ends secured through the openings at the top of the board. It is evident that the splint, being thus securely fixed, and made as part of the limb, tightening of the perineal band will extend the member and preserve it of its proper length. By care and attention in applying the apparatus, and in adjusting the cushions about the ankle and perineum, there is little or no risk of the skin giving way. The bandages will require to be reapplied once or twice during the cure; and the perineal band should be tightened frequently. The apparatus is retained for six or eight weeks, the time necessary for union varying according to circumstances. After its removal, great care must be taken at first in moving the

limb and putting weight upon it; it should be accustomed to its former functions very gradually."

Another convenient mode of fixing the thigh bone, is the concave double-inclined splint, recommended by Dr. Beach, with the foot-board added by Dr. Hill, fig. 269. The manner of using it must be obvious at a glance.

Fig. 269.



DOUBLE-INCLINED CONCAVE SPLINT.

The *oblique fracture of the trochanter major* is managed precisely like the preceding case.

When the *shaft* is *fractured*, the most important point in surgery is to prevent the shortening of the limb. The patient is placed in a *sitting* position, by which the psoas and iliacus muscles are relaxed, and the ends of the bones approximated. Extension is then made until the two limbs correspond; the roller is next applied, from the toes to the hip; three splints are then placed over the first bandage; one in front from the patella to the pelvis; one from external condyle to the trochanter major; and one from the internal condyle to the perineum. Dr. Hill—I think judiciously, too—recommends a *fourth* splint of stout gum-shellac cloth to be applied on the inferior surface, from the tuberosity of the ischium to the hollow of the knee, wide enough to cover one third of the thigh, and perfectly adapted to the surface. All the splints are to be firmly fastened with a roller, when the limb should be placed on the inclined splint, or supported by some similar apparatus. Three separate rollers are commonly employed; the first is so applied about the knee as to admit of its being bent. The patient should not lie down for ten or twelve days, as that posture is exceedingly liable to displace the broken bones.

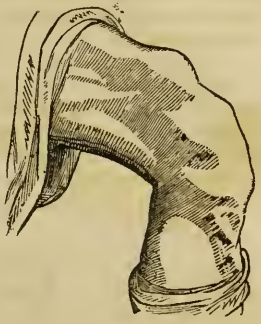
When one or both condyles are fractured, the limb is to be straightened so that the head of the tibia will press upon the condyles, and so cured with rollers and splints.

Fracture of the Patella.—This bone is generally broken *transversely;* the upper fragment is drawn up by the rectus femoris;

the patient cannot straighten the limb; and the fissure between the broken portions can be seen and felt, fig. 270.

Treatment.—The usual method of adjustment is to secure the limb in a perfectly straight position by a stiff splint extending down the back of the thigh to the calf of the leg, around which a roller is applied. The divided parts may be brought together by straps buckled around the limb above and below them, and drawn together by other straps attached to them, which pull the circular ones up and down until coaptation is complete. When the broken parts are not accurately adjusted, the union will be ligamentous instead of osseous.

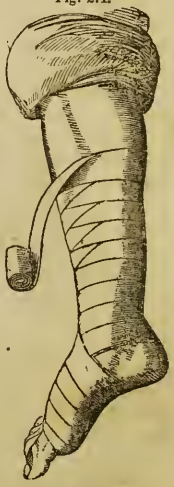
Fig. 270.



FRACTURED PATELLA.

When fractured *longitudinally*, the leg is to be extended, the parts brought together, and secured by bandage, compresses, and paste-board splints.

Fig. 271.



THE ROLLER

FRACTURES OF THE TIBIA AND FIBULA.—These accidents are readily detected by the deformity, pain, crepitus, etc.

Treatment.—When the head of the tibia is fractured, the management is the same as for fractured condyles of the femur. What is commonly termed "broken leg," is a fracture of one or both bones between the knee and ankle. The double-inclined splint apparatus, or some similar contrivance, is here necessary. The application of the roller, fig. 271, which is the first part of the dressing, need not begin at the toes, as in the case of ulcers, nor be as firmly bound. This bandage is applied before the bones are fully adjusted, and not so tight as to prevent further extension. In all fractures the great toe is to be kept in a line with the inner edge of the patella. In *oblique* fractures, after the provisional application of the roller, the limb should be placed on the inclined splints, and extended until the two limbs compare exactly; the foot is then to be

fixed to the foot-board by straps that will not stretch; and after the adjustment of the bones is completed, two or three splints are to be applied and bound with a roller, which is also to extend around the inclined or supporting splints. Any ingenious mechanic can make a machine in an hour or two which will serve as an inclined plane, and answer as a substitute for the double concave splints before mentioned.

Fractures about the Ankles.—By twisting the foot outward, the *fibula* is sometimes broken about three inches above the ankle, accompanied with partial or complete dislocation of the ankle, fig. 272. The internal malleolus, by projecting, forms a tumor, and when the foot is moved, crepitus can be felt just above the external malleolus.

Fig. 272.

FRACTURE OF THE FIBULA.

Fig. 273.

FRACTURED TIBIA.

The *tibia* is sometimes fractured near its lower end; it may be *transverse*, extending through the fibula; but is generally *oblique* with the *internal malleolus* also broken, fig. 273. The foot is turned inward, and the crepitus is felt on the inside.

Treatment.—In the first variety the dislocation must be reduced before the fracture is adjusted. The fractured parts are to be kept in

place by one splint at the back of the leg, another along the fibula, the foot-board, and the usual bandages. In the second variety a splint is to be applied on the side of the tibia.

Fractures of the Foot.—Nearly all of these cases are connected with severe contusions and lacerations. The medical treatment is as important as the surgical. The cold water-dressings and bandages must be employed with a vigor proportioned to the intensity of the inflammation; and the fractured bones kept in their places by pasteboard or shellac splints, compresses, and bandages applied to meet the indications of each case.

Note.—There are some circumstances which the practitioner should *always* bear in mind, although they have not always been specified in treating of particular fractures and dislocations. In the first place, any injury of the kind, and especially those about the wrist, knee, and ankle, as well as complicated cases generally, are liable to severe inflammation. When fractured or dislocated parts are very painful or badly swelled from inflammation, this must be subdued before adjustment or reduction is attempted. In the second place, adjustment or reduction is always greatly facilitated by previously bathing the part in as warm water as can well be borne. Thirdly, in all cases of fracture or dislocations involving the structure of a joint, very gentle or passive motion should be made at the joint as early as is consistent with safety, to prevent anchylosis, or stiff joint. If made too soon, however, there is danger of re-displacement. The time and extent of this motion must be determined by the nature and place of the injured, the age and health of the patient, ect.

CHAPTER XI.

PARTICULAR OPERATIONS.

Trephining.—When performed for a fracture of the skull, a small opening is sufficient; but when the object is to evacuate matter, it should be larger. The requisite instruments are, a large and small trephine, a Hay's saw, an elevator, a scalpel, with the common pocket-case. A flap is made through the scalp in the shape of the letter D, the circular side of which is raised, when loose fragments of bone, if

present, are to be removed. The lining membrane of the bones—pericranium—is next to be separated, or a circular incision made through it for the edge of the instrument. The trephine is to be applied so that the centre-pin will rest on a sound portion of the skull; the instrument is then turned steadily forward and backward, gentle pressure being made upon it at the same time, removing it frequently, and clearing the teeth with a brush; the groove must also be examined frequently, and the dust and blood removed with a piece of wetted sponge. When the groove is deep enough to steady the instrument, the centre-pin is to be withdrawn; and as soon as any point of the bone is cut through, an attempt should be made to raise the piece of bone within the circle; but if it does not succeed, the sawing should be very cautiously continued until the bone is nearly cut through all round, when it may be detached with ease. After purulent matter or extravasated blood is removed, or the depressed portion of bone elevated, the scalp is to be replaced and secured with the wet compress. The trephine should not be applied over a suture, nor over the course of the middle meningeal arteries.

Paracentesis Capitis.—The operation of puncturing the head has been resorted to in some cases of external dropsy. One of the fontanelles is the point usually opened; the fluid is drawn off very gradually, so as to avoid fainting. The wound heals readily, but the operation seldom succeeds in effecting a cure.

Paracentesis Oculi.—Tapping the eye to let out the humors is among the *regular* resources of chirurgery, when the inflammation is so intense that the "ordinary means" fail; but as the hydropath has ample and *extra*ordinary means to subdue inflammation, *he* will have no occasion to "operate" in this way.

In dropsical affections of the eye, attended with a gradual and permanent enlargement of the globe, protuberant eyeball, and excessive pain, the eye may be properly punctured. A common lancet, or couching needle, may be introduced behind the junction of the cornea with the sclerotic coat, into the posterior chamber. Some surgeons puncture the anterior chamber through the cornea.

Fistula Lachrymalis.—A small, sharp-pointed bistoury, or cataract knife, is held perpendicularly to the eyebrows, the point directed to the lower margin of the internal tendon of the eyelids, which may be seen on drawing the lids outward, the patient sitting erect, and the surgeon standing behind. The point of the instrument is pressed di-

rectly downward, fig. 274, until it enters the sac, which will be denoted by a flow of tears and mucus. The opening should be slightly enlarged outwardly as the knife is withdrawn. A probe, curved a little forward and inward, is then introduced, and, if necessary, pushed through into the nostril, when a tube, style, or tent is inserted.

Fig. 274.

LACHRYMAL FISTULA.

ENTROPIUM AND ECTROPIUM.—The *inverted* lid can often be restored by cauterizing the outside of the lid, or by incising the mucous membrane. *Eversion* is often cured by a removal or division of the tarsus.

ANCHYLOBLEPHARON AND SYMBLEPHARON.—The first of these terms is applied to a growing together of the eyelids, which may be remedied by the use of olive oil, or any bland cerate; and the second, when the lids adhere to the eyeball. They are sometimes dissected apart, but the operation is not often successful.

PTOSIS AND LAGOPHTHALMOS.—The former case—elongation or drooping of the eyelids—may generally be remedied in the same way as entropium; and the latter—a shortening of the eyelids—may be treated as ectropium.

BLEPHARIDOPLASTICE AND RHINORRHAPE.—In relation to these formidable words, I can only inform the curious reader that the first applies to the formation of new eyelids and eyelashes from the adjacent integument; and the second, to new lids, or parts of lids, from the integument taken from the back of the nose. New eyelids have also been formed of the integument of the temple.

RHINOPLASTICE.—This operation, sometimes called *taliacotian*, consists in the formation of an artificial nose from the integument of the forehead or temple. In this and all similar cases, the particular circumstance of each case must determine the kind of operation required.

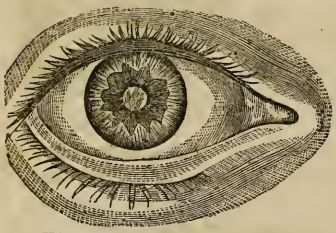
SCHLESEKTOMY—KERATOPLASTICE.—These terms have been lately applied to an operation for the formation of an artificial pupil. Experience does not justify it except in cases of complete blindness.

Otoplastice.—One of Taliacozzi's operations for forming a new ear out of the scalp of the back part of the head is so called.

Cheilo, and Genio-Plastice.—These are still other taliacotian operations, either performed or *proposed*, to restore lost parts of the lips and chin by taking the integument adjacent.

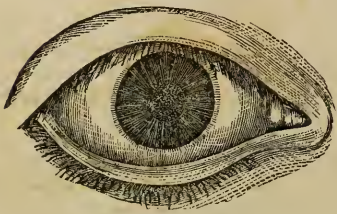
Couching.—This is one of the operations for curing blindness caused by cataract. The disease consists in an opacity of the crystalline lens, or its capsule, or both. The eye presents very different appearances in different forms of the disease. Fig. 275 represents a *hard* cataract; it has a radiated appearance, with an amber-colored center and gray circumference. Fig. 276 shows the appearance of the eye when the lens is in a soft pulpy or creamy state. Liston says, "the darker the color, the harder the cataract."

Fig. 275.



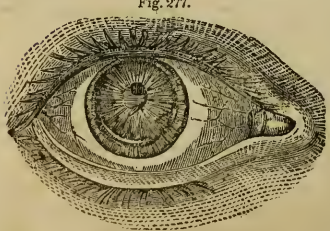
HARD LENTICULAR CATARACT.

Fig. 276.



SOFT LENTICULAR CATARACT.

Fig. 277.



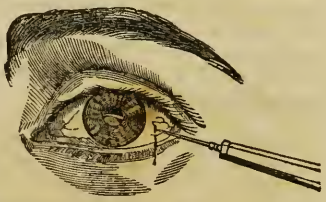
CAPSULAR CATARACT

Opacity in the *anterior* part of the capsule is usually indicated by a whitish spot in the center of the pupil, with a dark blue circle around it; and when the opacity is in the *posterior* portion, it appears concave, striated, and yellowish, and at a distance behind the iris, fig. 277. In the majority of cases, however, the affection is of a mixed character.

For a day or two before operating, surgeons usually keep the pupil dilated by the frequent application of some strong narcotic to the lids

and balls of the eye, as extract of belladonna, stramonium, etc. The head of the patient is steadied by an assistant, who also holds the eye fast with the speculum; the upper lid may also be held by the fingers of the assistant, and the under lid by the operator, who is obliged to prevent the eye from rolling with one hand, while the other handles the instruments. The usual position of the patient is a low chair, in a well-lighted room, and that of the surgeon, seated on a high chair in front, with a foot-stool to steady his elbow on his knee. The couching needle is introduced through the sclerotic, about two lines from the cornea, and a little below the horizontal axis of the eye, and its point carried slightly backward to avoid the iris; when the point of the needle is seen in front of the lens—by looking through the pupil—the capsule is to be detached from the lens with the sharp edges of the needle, and then pushed down out of sight. But if the lens itself, or its posterior capsule, then appear opaque, the edge of the needle is to be moved round its margin to separate the lens from the *tunica hyaloidea*, and then the lens pushed down by placing the flat surface of the needle on top of it, fig. 278, below the pupil, and slightly backward into the vitreous humor; or it may be drawn down by thrusting the needle into it. If the lens rise on raising the needle, it is to be held down until it will remain stationary, when the operation is finished and the needle may be withdrawn. The patient should be kept in a dark room, and the eye closed and covered with a cold wet cloth for several weeks, until all danger of inflammation is passed.

Fig. 278.

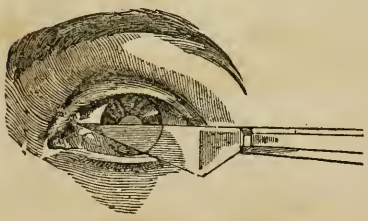


COUCHING.

EXTRACTION.—This is the operation for removing the opaque lens. The upper eyelid is supported by the *retractor*, or by an assistant instead of a speculum, and the lower one by the fingers of the surgeon. Resting his little finger on the patient's cheek, the point of the *cornea-knife* is passed edge downward through the transparent cornea, a little within its outer margin and above its center, and passing straight across, parallel to the iris, emerges at the opposite margin. The wedge-shaped edge of the knife advances in two directions round the cornea, making a semicircular section, fig. 279. On removing the knife, the lids are instantly closed, the operator giving the assistant a signal for the purpose. In a short time the eye is again opened, the

corneal flap raised, a needle inserted, and the capsule lacerated with it. Slight pressure is then made upon the ball, unless the lens passes out at the opening without. After examining the eye to ascertain if the iris is prolapsed—in which event the eye has to be exposed to a strong light, to cause contraction and retraction, or the iris pushed back—the cornea is adjusted, and the eye dressed with the compress and bandage.

Fig 279



EXTRACTION OF CATARACT.

Absorption, or Solution.—This is another and the easiest method of disposing of an opaque lens, but it frequently has to be repeated. It is best adapted, however, to congenital and soft cataracts. Surgeons have an *anterior* and *posterior* operation; but the latter is preferable. The couching needle is introduced as for depression or couching, the capsule broken up, and the lens cut in several directions. If this does not soon effect its absorption, the needle is again introduced, and the lens broken into minute fragments.

Teeth Drawing.—The *turnkey* has long been in use for extracting teeth, especially the back teeth; but *forceps* are becoming more and more in favor in all cases. When the turnkey is employed, the gum should be cut cleanly from the neck of the tooth with the point of a sharp penknife, the hook of the instrument fastened upon the tooth as *low down* or near the jaw-bone as possible, and the fulcrum resting *on*, and not against the side of the jaw. This manner of adjustment will raise the tooth as nearly perpendicular as possible, and to that extent diminish the danger of breaking the jaw-bone. In some cases the neck or fangs of the tooth are firmly adherent to the jaw when a greater or less fracture is inevitable. The severe bleeding which sometimes follows the operation, can be readily checked by washing the mouth with the coldest water, and exposing it freely to the cool, open air.

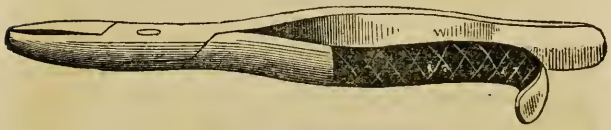
When *forceps* are used, of which several sizes and shapes are manufactured to suit the different teeth, figs. 280, 281, and 282, the blades are to be pressed firmly down to the jaw, and while the tooth is raised by a steady force, slight lateral motions are to be made to loosen the fangs in the socket. In the extraction of *incisor* teeth, circular motion

should be made. The cuspids may be extracted with the incisor, and the bicuspids with the molar forceps. In extracting fangs or "snags,"

Fig. 280.

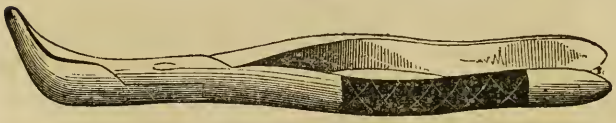
MOLAR FORCEPS OF DR. HILL.

Fig. 281.



COMMON INCISOR FORCEPS.

Fig. 282.



POINTED FORCEPS FOR EXTRACTING FANGS.

the gums are to be completely detached, and the sharp points of the forceps pressed as far down as possible, when the fragment is to be seized, raised, and rotated at the same time.

Pumping the Stomach.—The introduction of the common stomach-pump requires no special directions; but in emergencies, as in cases of poisoning, the stomach can be emptied by introducing the elastic tube of the common injecting syringe, using the syringe itself as the pump. When it is withdrawn, the outer end should be closed, so that whatever liquid it might contain would not run back into the stomach.

Catheterism.—This term applies to the clearing and enlarging of various canals in the body, but is usually understood as pertaining solely to the passage of *the* catheter through the urethra into the bladder. Either a straight or curved tube can be inserted by any one familiar with the anatomy of the parts.

To introduce the *male* catheter most conveniently, the patient lies on the back with the shoulders somewhat elevated; the catheter is held at a right angle to the body until its point reaches the arch of the pubes, and then depressed to a level with the thighs, when the point of the instrument will slip over the triangular ligament and enter the bladder. The female catheter is easily introduced, as the thickened edge of the urethra can readily be felt about an inch behind the symphisis pubis, at the upper edge of the vagina.

Common catheters for the urethra are made of silver or gum-elastic. When the latter is introduced, a wire is contained within the tube to prevent its bending on meeting with resistance in its passage.

A catheter is sometimes passed into the Eustachian tube to clean or enlarge it; the orifice of the tube is about a quarter of an inch behind the soft palate, and is large enough for the insertion of the little finger. The instrument is passed through the nostril with its convexity upward, until the patient gags, when, by turning the point further toward the affected side, it will slip into the tube, or the point may be directed into it by the finger introduced through the mouth.

Inoculation.—This operation has thus far been confined to vaccination—the introduction of the kine-pox virus as a preventive of small-pox. The cuticle is raised with the point of a sharp lancet or needle, and the vaccine lymph, previously moistened, rubbed on the abraded surface. Three or four punctures are usually made near each other, on the outside of the arm above the elbow.

But the French surgeons are threatening us with another kind of inoculation, that of syphilis itself! It is announced in the late medical journals, that the wonderful discovery has been made that, by repeatedly inoculating the system with this virus until the system is *saturated* so that it will take no more, the system will thenceforward be proof against any further action of syphilitic poison. What *use* "the profession" in Paris or New York intend to make of this "discovery," is not stated; and I mention the subject for the especial purpose of reprobating the gross immorality as well as arrant quackery of the whole affair.

Œsophagotomy.—The gullet has sometimes been opened to extract foreign bodies, and to introduce food into the stomach. An incision is made between the trachea and sterno-cleido mastoid muscle; and the dissection made chiefly with the fingers, to avoid the recurrent nerve, the fascia being cut with the protection of a director. The operation may prolong, but seldom saves life.

Choking is generally produced by some substance lodging just above the cricoid cartilage, from which it is in most cases soon pushed forward toward the stomach, or raised a little, sticking fast in the pharynx, where it may produce suffocation by pressing upon the larynx and exciting spasm of the glottis. By opening wide the mouth, the article can generally be loosened with the finger, a fork, teaspoon, spoon-handle, or curved forceps. If it has passed below reach in this way, it may be pushed into the stomach with a *probang*, a piece of whalebone, having a rounded end, and covered with silk; or withdrawn by means of an air-pump.

Laryngotomy.—This operation is sometimes necessary to remove foreign bodies. An incision is made through the skin from the lower side of the *pomum adami* to the lower border of the cricoid cartilage. The skin is then separated, and the cellular membrane ruptured with the handle of the scalpel, between the sterno-hyoid muscles down to the crico-thyroid membrane, when the point of the scalpel is passed suddenly through this membrane.

Tracheotomy.—The trachea or windpipe is sometimes opened in order to extract foreign substances. The place selected is the median line, extending from near the upper end of the sternum to the cricoid cartilage. It requires a skillful anatomist.

Paracentesis Abdominis.—"Tapping," as this operation is usually called, is performed in *ascites*, or dropsy of the abdomen; it is justifiable whenever the fluid is contained in a cyst, and when all the usual means for promoting the absorption of the fluid have failed. The patient sits in a chair; a bandage is made of a sheet folded about half a yard wide; this is placed around the abdomen, with a hole in front through which to operate, and crossed behind the back, where the ends are held by two assistants, who are to tighten it as the fluid escapes. The surgeon then makes an incision in the *linea alba*, two or three inches below the umbilicus, fig. 283, with a sharp lancet or bistoury, through which a blunt tube or canula is introduced to carry off the fluid. If faintness occur, the flow must be lessened or even discontinued for a time; and if excessive fainting supervene, the patient may be placed in a horizontal position, and the completion of the operation deferred for several hours, or even a day or two. The only dressing required is the adhesive strap and bandage; the patient must keep very quiet for several days, and then resume habits of exercise very gradually.

Paracentesis Vesicæ.—The bladder may be "tapped" above the

Fig. 283.

PARACENTESIS ABDOMINIS.

front of the pubes, or punctured through the rectum in males, or vagina in females, in obstructions which admit of no other method of relief.

Imperforate Anus.—Children are sometimes born with the integument closed over the rectum, which can be observed swelling beneath. A simple incision will remedy the difficulty. When the rectum cannot be reached, and in cases of its closure in the adult in consequence of disease, the only remedy is an artificial anus. This is usually made by cutting in the loins to the descending colon, and attaching the bowel by two ligatures to the lips of the wound; an incision is then made into it, and the lips of this wound more closely united with those of the first.

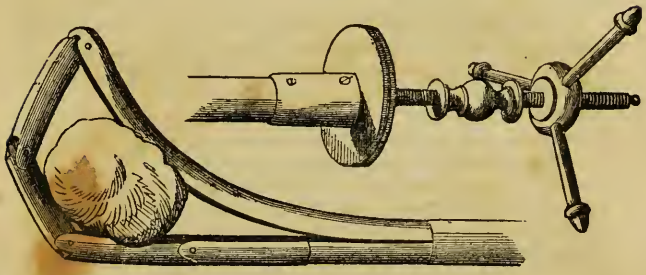
Imperforate Urethra.—When this is a congenital malformation, a round trochar is to be inserted, followed by a canula, and then by a catheter, and this is retained until the orifice heals.

Lithontripsy and Lithotomy.—Each of these modes are resorted to for stone in the bladder. The former operation consists in crushing it in the bladder with an instrument called the *lithontriptor*, and is only applicable to adults when the stone is soft and small; and the latter consists in cutting into the bladder with the gorget or knife.

The operation of lithontripsy is more frequently applicable to the female, by reason of the larger diameter of the urethra; and for the same reason, even this is very rarely necessary.

For the operation of *lithontripsy*, the urethra must be dilated by bougies until the lithontriptor will pass. This instrument, fig. 284, is

Fig. 284.



LITHONTRIPTOR INCLOSING A CALCULUS.

then oiled and passed into the bladder, while closed, as a common bougie. When it comes in contact with the stone, the movable half is pushed in, by which the blades are opened at the several joints; it is then rotated from side to side, tightened occasionally, etc., so as to grasp the stone; when fixed between the blades—which fact is known by the inability to draw the sliding part back—the arms of the screw are turned gradually, by which the slide is withdrawn and the blades brought slowly and with great force together. After the stone has given way and the instrument closed, it is to be reopened and managed in the same way for any large fragments which remain. During the operation the patient is placed on a table, with the hips elevated and the bladder full, or nearly so; or it may be filled by injection through the catheter. After the crushing process is completed, the lithontriptor is withdrawn, the patient turned face downward, and directed to urinate as rapidly as possible; after which the bladder may be repeatedly injected and the powdered stone washed out.

In *cutting* for the stone, the *lateral* operation is now generally preferred, and *always* adopted by some of the most eminent living surgeons. But as no one will attempt it without special education in the dissecting-room, its description, which is somewhat tedious, need not be detailed here.

AMPUTATION.—The Water-Cure method of treating injuries, tumors, ulcers, and inflammations, is destined to diminish very greatly the

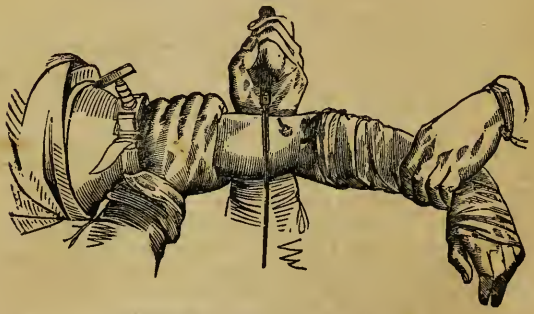
demand for this operation, which, however, is much more simple than is generally supposed, and can be performed by almost any person who combines a good mechanical tact in the use of tools, with a sufficient amount of anatomical knowledge to enable him to compress the main artery.

The operation may be performed with nearly equal advantage in two ways, one of which is called the *circular*, and the other the *flap* operation. The latter, however, is applicable to a greater number of places.

The usual instruments employed, in addition to the pocket-case, are, the tourniquet, large knife, saw, and bone-forceps. For the circular operation, a blunt, round-pointed knife is used; and for the flap operation, two sharp-pointed ones for different parts. Of course, the thorough, practical surgeon is to be preferred in all cases requiring amputation, but emergencies do sometimes exist in which *immediate* amputation is the only chance for the patient's life; and to meet this exigency, the following explanations are given:

The patient is seated in a chair, or placed on a bed or table; the pad of the tourniquet is fixed on the artery at a convenient distance above the place of operation. In the *circular operation upon the arm*, one assistant supports the forearm, and another grasps the arm above with both hands, and pulls back the integument as much as possible. The surgeon passes his hand under the arm, bringing the knife com-

Fig. 285.



CIRCULAR AMPUTATION OF THE ARM.

pletely over it on his own side, with the point downward, fig. 285, and makes the first incision by drawing the blade backward from hilt to

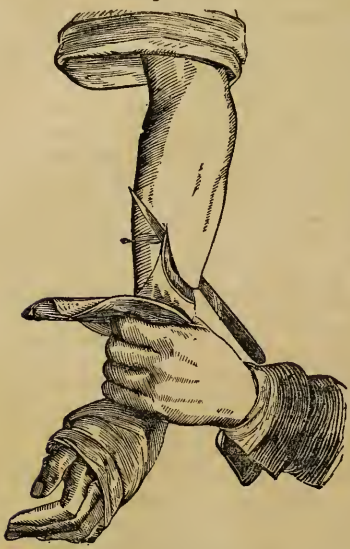
point, cutting through the skin and superficial fascia, entirely round the limb. The skin is then loosened from the muscles beneath, by separating the areolar tissue with a scalpel or bistoury; the skin is next retracted further up, and then another incision made as high up as the skin will allow, dividing all the flesh down to the bone. Some surgeons give an elliptical direction to both incisions, leaving the muscles longer before and behind than at the sides. The muscles are next separated from the bone an inch or two with the point of a knife or scalpel, and a strip of muslin, a yard long and three inches wide, made into a "two-tailed retractor," by slitting it to its middle, applied, the broader end being placed on the under side, the two tails passing up on each side of the naked bone, and crossing them at the top; by this the flesh is pulled upward as far as possible, and held by an assistant. The periosteum is then separated from the bone by a circular cut, and then the bone is sawed off, the splints, if any, remain, being smoothed off by the bone-forceps or nippers. The retractor is then removed, and the brachial artery tied. If the artery is not readily found, the tourniquet is loosened, when a jet of blood discovers it. All other arteries which bleed on loosening the tourniquet, are to be also taken up and tied. When the veins cease bleeding, the stump is to be washed clean and dressed by bringing the edges of the flesh together in an exact horizontal line across the middle of the stump, and there fastened by strips of adhesive plaster, three fourths of an inch wide and eight or ten inches in length, placing the first over the center of the seam, and the others laterally at about a quarter of an inch distance. Other straps may be laid obliquely over these, and narrow straps in any direction necessary to secure every part of the wound firmly; and a strap around the whole arm to secure all the others is also advisable. The stump is then covered with lint, retained by a light, easy bandage; and the dressings are to be kept constantly wet with cold water, if there is the least tendency to inflammation.

When animal membrane is used for tying the arteries, it may be cut off close to the knot and left to itself; but if linen or silk is employed, one end of the ligature must be left long enough to hang out between the straps. The dressing does not usually require removing under several days; and when they are removed or readjusted, the parts must be carefully supported by an assistant; the ligature must be taken away whenever it can be done by gentle pulling; but its removal should not be attempted within one week.

When it is necessary to amputate the arm high up, the subclavian artery should be compressed where it passes over the first rib, by the thumb of an assistant.

In the *flap operation for the forearm*, fig. 286 shows the proper position of the arm. The posterior flap is made first; and when the point of the knife reaches the bone, the hand is to be rotated a little inward, and the point pushed on close over both bones, taking care that it does not pass between them; when the blade passes over the ulna, the hand is to be rotated a little outward, to bring its point further down under that bone; the incision is then pursued downward and outward, so that the edge of the knife may emerge at about an inch and a half below, and at equal distance from, the points of entrance and emergence. The external flap is then raised a little, the knife entered at the former point, pushed through close in front of the bones, and brought obliquely downward, thus making a second flap to correspond with the first. The remainder of the operation and the dressings are similar to those of the former operation.

Fig. 286.



FLAP OPERATION.

Amputation of the fingers, though occasionally desirable at either joint, is most frequently performed at the base—the *phalangeo-metacarpal articulation*, fig. 287. An incision is made upon the knuckle in an elliptical form around the finger, extending down upon the palmar surface of the fin-

Fig. 287.

AMPUTATION OF THE FINGER.

ger about an inch, to make a flap large enough to cover the joint; after which the tendons and ligaments are cut through, and the joint dislocated by carrying the knife through it.

Ligating and Compressing Arteries.—These operations will usually be performed by the experienced surgeon; but emergencies will frequently exist in which it is indispensable to cut down upon and tie, or make compression on a large artery, in order to arrest a dangerous flow of blood, or prevent hemorrhage while removing tumors or other morbid parts. How and where to do these things, ought, therefore, to be matters of general information. In ligating arteries, the main points to be observed are, to make an *oblique incision* over it, and to avoid taking up the nerve, which is frequently inclosed in the same sheath with the artery. And in compressing arteries, a handkerchief or the thumb may be employed, making the pad or pressure to bear directly on the vessel. When the thumb is employed, the beating of the artery will direct the exact point for the pressure to be made, which is to be increased until the pulsation ceases.

The *subclavian* artery may be compressed by the thumb, and with difficulty in any other way, where it passes over the first rib, in the space between the first rib and clavicle, thus controlling the circulation of the entire arm. The *brachial* artery can be easily compressed on the inner side of the arm, about midway between the elbow and axilla, as it lies near the surface. The circulation of the lower limb may be effectually controlled by compressing the *femoral* artery at the groin just above Poupart's ligament; the pulsation of the artery can be felt immediately below the concavity of the groin; the thumb is here the most effectual instrument for compression, although a piece of cork, or the handle of a door-key, wrapped in several folds of linen, will answer.

The *large arteries of the neck* seldom require compression, except when large tumors are to be dissected out. The *common carotids* may be considered as resting on the transverse processes of the cervical vertebræ, and their circulation may be controlled by pressing them against those processes.

Note.—There are a few instruments required in some of the preceding operations which are found at nearly all the manufacturing shops; but an ocular view may enable the operator to have either of them made to order, should it prove necessary or more convenient. Fig. 288 represents the *double hook* employed in the operation for strabismus. Fig. 289 is the *curette* or *director* used in the same operation. Fig 290 is a pair of *fine hook* forceps. Fig. 291 is a pair of *curved*

scissors. Fig. 292 represents the silver *tube* inserted in cases of fistula lachrymalis. Fig. 293 is the *style* sometimes employed in the treatment of the same disease. Fig. 294 is the ordinary *curved couching-needle*, and fig. 295 is called *Hay's couching-needle*. The former needle is sometimes called Scarpa's, and is generally preferred.

Fig. 294.

Fig. 295.

PART VIII.

MIDWIFERY.

CHAPTER I.

HISTORY OF MIDWIFERY

ANCIENT MIDWIFERY.—All history, sacred and profane, attests that the general practice of midwifery has been in the hands of females until a very modern date. It is true Hippocrates *theorizes* on obstetrics, but we have no evidence of his possessing any experimental knowledge on the subject. Historians tell us that in Greece, Rome, Persia, Egypt, Arabia, and Chaldea, woman was woman's physician. The Old Testament informs us that *female* midwifery was an honorable calling among the ancient Hebrews. "Since the beginning of history," says Mrs. C. M. Dall, "the lives of eighty-seven women, eminent not only for obstetrical skill, but capable of extended practice, have been written."

So far as the world has had experience in this matter, the success of female accouchers has been at least as great as that of male accouchers; and the statistics of all ages show that the *attendance* of woman has been accompanied with fewer accidents and a less number of fatal cases than the *practice* of man. Since it has been as fashionable as it is foolish to drug and bleed pregnant females occasionally, on the absurd notion that there are a great many *natural* "diseases of pregnancy," the success of our most eminent professional men-midwives compares rather unfavorably with that of many professional female mid wives, who lived in happy ignorance of the whole of the modern drug and bleeding art.

MODERN MIDWIFERY.—Save in most parts of Great Britain and the United States, the general practice of midwifery still is in the hands of woman. In several European countries, the business is divided between male and female practitioners; but in the greater number of

countries on earth, civilized and uncivilized, woman officiates in all ordinary cases. Throughout Russia, at this day, educated females attend all classes of society, from the royal family to the meanest serf. The Chinese employ midwives in all ordinary cases, obstetrical surgeons being called upon only when instrumental assistance is necessary. The American Indians, the Otaheitians, the New Zealanders, and many other nations and tribes, who employ female midwives or none, are celebrated for easy births and exemption from accidents. In France, the *sage femme*, wise woman, is the principal accoucher. In Germany, the *vroedvrouw*, skillful woman, officiates. In Denmark her title is *iordermoder*, earth-mother. In Sweden and Norway she is called *iord-gumma*. In Spain and Portugal, the *co-madre*—literally, with mother—attends. All of these terms are equivalent to midwife in our language.

Female Authors and Practitioners.—Soon after the institution of the first medical school in Greece, the exclusive spirit of the faculty obtained the enactment of a statute prohibiting the practice of this art by "women and slaves." The tyrannical act spread dismay among the women of Athens; and so tumultuously did they rebel against the outrage upon "woman rights," that a new act was soon after passed allowing free-born women to learn midwifery. No other attempt was made by the profession to wrest this practice from its rightful owners until after the accession of Henry IV.

Among those who have attained eminence in this their peculiar department of the healing art, the following names may be mentioned in this place: Agnodike, the daughter of Hierophilus; she practiced successfully at Athens in defiance of the medical clique. Artemesia, the queen who assisted Xerxes at the battle of Salamis. Elpindike, of Greece, daughter of Cimon, and sister of Miltiades. Yroutata, of Salermo, who practiced in the latter part of the thirteenth century, and wrote several books. Mad. Perrette, who was sworn into the office of midwife, in Paris, in 1408, and became famous throughout France. Mad. Gancourt, later in the fifteenth century, became equally celebrated. Mad. Francoise, the midwife of Catherine de Medicis, was an approved lecturer on obstetrics near the middle of the sixteenth century. Olympia Morata, born in Ferrara in 1626, wrote the lectures which her husband, a young physician, delivered at Heidelberg. Mad. Perronne had the reputation of contributing all the obstetrical matter which was published in the works of the eminent French surgeon, James Guillemeau. Louise Boursin Bourgeois, born in 1580, married a surgeon, was appointed to attend the Queen of France, and

published many valuable works. Mad. La Marche, born in 1638, was an accomplished literary scholar, as well as extensive obstetrical writer and practitioner. Justine Dieterich Siegmunden, born in Silesia in 1650, was one of the most accurate anatomists of her day, an extensive practitioner of midwifery, and the authoress of several obstetrical works. Mad. Breton, in the eighteenth century, invented a plan for the artificial nourishment of babes. Elizabeth Blackwell, born in England in 1712, was the authoress of the first illustrated work on medical botany ever published. Mad. Ducondray, born at Paris in 1712, was the first person who lectured with a manikin, which she invented herself. Morandi, born at Bologna in 1716, was among the first to invent and perfect wax preparations. Mademoiselle Biheron, born at Paris in 1730, made still greater improvements in wax figures illustrative of obstetrical knowledge.

Sarah Stone, of England, was the authoress of a work published in 1737, called the "Complete Practice." Elizabeth Nihell, of London, was distinguished for successfully opposing a distinguished physician on one hand, and a notorious quack on the other. In 1760 she wrote a treatise on midwifery, in which she exposed the use of instruments, which the male accouchers were becoming too fond of employing; advocated the employment of women, and strongly protested against the interference of men. She declared that a curse followed their intermeddling, in evidence of which she adduced the increasing number of difficult and fatal labors. Mad. Reffatin, born in 1720, was the author of a work on "Delayed Accouchments." Margaret Stevens was the authoress of the "Domestic Midwife," published in London in 1795. Mad. Lunel published a work in Paris in 1750. Mad. La Chapelle, who officiated in over twenty-two thousand cases at the Maternité Hospital in Paris, ranks among the standard authorities on midwifery. Mad. Bovin, another standard authoress of several works, attended over twenty thousand cases, and performed nearly all the manual and instrumental operations known to the art as successfully as any male accoucher has ever done. Mad. Lesebours was the authoress of a work published in 1770. An Irish midwife, named Dunally, performed the Cæsarean operation successfully with a common razor. Mad. Rondet, born in 1800, perfected a tube for the restoration of children born asphyxiated. Mad. Dian was practicing reputably in 1821. Mad. Wittemback was consulted in relation to obstetrics by the most experienced physicians.

In the United States the following names occur in this connection: Old Mrs. Wiat, who died at Dorchester, Mass., in 1705, aged ninety-four years, assisted as midwife in more than eleven hundred cases. Mrs. Whittemore, who died in Marlboro', Vermont, at the age of

eighty-seven, often traveled through the woods on snow-shoes to attend her patients, and of more than two thousand cases of births, she never lost a patient. Mrs. Elizabeth Phillips, who was born at Westminster, England, and commissioned to act as midwife by the Lord Bishop of London in 1718, removed to Charlestown, Mass., the following year, where her gravestone now records the honorable story that she assisted in successfully bringing into the world above three thousand children. Mrs. Janet Alexander, who died at Boston in 1845, aged sixty-one years, studied midwifery with Dr. James Hamilton, of Edinburgh, and practiced in this country twenty-five years without losing a patient. Mrs. Stebbins, who died at Westfield, Mass., in 1844, at the age of seventy-five, was an extensive and successful practitioner for many years. Similar facts could be greatly multiplied, but I have already enough for my purpose.

MAN-MIDWIFERY.—According to the best authorities we can find, man-midwifery, as a regular part of the physician's duties, dates back precisely one hundred and eighty-eight years, and then it originated with a court prostitute of Louis XIV., the Duchess de Villiers, who, under arrangements of the utmost secrecy, submitted to be attended by Julian Clement, an eminent surgeon. Clement was soon after appointed to the new and lucrative office of midwife to the Princess of France. Until that event the ordinary practice was entirely in the hands of female midwives, surgeons being called upon only *as surgeons* in cases of unnatural labors.

In the most uncivilized and unenlightened portions of the globe, a male midwife has never been heard of. A male accoucher was not known among the "Puritans" until this country had been settled more than a century. In 1723, Dr. John Maubray, the first male lecturer in England on this subject, wrote a book against the abuse of instruments, which the male accouchers were becoming too fond of employing. In fact, at that time the use of instruments was considered such an improvement on nature that, in the language of Dr. Gregory (*Man-midwifery Exposed*), "Almost every doctor, old or young, was for trying his hand at it." So notorious, indeed, was the rage for instrumental operations, that Sterne, in 1757, satirized it in "The Life and Times of Tristram Shandy, Gent."

Dr. Shippen, of Philadelphia, was the first lecturer on midwifery in the United States—1762. Dr. Atwood, of this city, in the same year, was the first to advertise himself as a man-midwife. And no longer ago than 1820, a Boston physician published and circulated a pamphlet advocating the exclusion of females from the practice, and the substitu-

tion of males. At the present time, nearly every allopathic medical journal in the world is vehemently opposed to relinquishing this practice into the hands of females, while every progressive and reform periodical I am acquainted with as earnestly advocates the restoration.

Who Should be Midwives ?—I confess to be of that number who advocate a restoration of the practice of midwifery to *educated* females; but I am very far from desiring to see it taken from the hands of educated physicians and entrusted to ignorant nurses. I hold, however, that *all* females should be sufficiently intelligent on this subject to manage an ordinary labor, and certainly the education required for this purpose is exceedingly simple—so much so that the majority of females could and would acquire it without any teacher whatever, if they were entirely left to themselves, and thereby compelled to become self-instructed. It is very true, moreover, that the multitudinous disorders and deformities existing in artificial society, do now, and will for a long time to come, render surgical assistance necessary in certain cases; and for this purpose the practical surgeon-accoucher should be retained for accidents, complications, and emergencies. His services would be rarely called in requisition if we had properly-educated females to take the entire management of the ordinary practice; and surely no one will pretend that young men can be taught the simple yet delicate duties of a companion and attendant during childbirth, more readily than young women can, or be more efficient in the discharge of the responsible duties devolving. The reason young women are not so educated, or are but imperfectly educated, is because the immense influence of an interested profession is arrayed against them.

CHAPTER II.

REPRODUCTION.

Theories of Reproduction.—No subject has engrossed a greater share of the attention of philosophers and physiologists in all ages of the world than the mysterious function by which the great command, "increase and multiply," is fulfilled. All the theories which ingenious minds have fabricated may be resolved into three, and perhaps two; although no less than *two hundred and sixty-three* modifications of those theories have been proposed. Without wasting any time upon these

fanciful speculations, it is enough for all practical purposes, to understand that sexual association is necessary to the propagation of our race; and that the female furnishes the ovum or germ of the future being, while the male communicates the vivifying principle. Both, however, equally concur in supplying the actual elements of its organization originally; but the mother has the greater modifying power over the development of those elements, on account of the constantly commingling of the circulating fluids of mother and child until birth, and the nourishment of the child being derived directly from the mother during the period of early infancy.

Transmission of Organization.—Nothing is better established than the fact that the character and quality of the organization of the child are dependent on that of both parents; and this fact is of immence importance in its bearings on the well-being of the family of mankind. Though this principle is pretty well understood in the management of cattle and in improving the breed of horses, it is very generally overlooked in theory or disregarded in practice as relates to the human being; and it is to me a matter of astonishment that the standard works on physiology and obstetrics in our medical schools never elucidate the subject, and seldom allude to it. But surely all who contemplate the matrimonial relation, as well as all who are already in that relation, ought to know that precisely according to the development, purity, and vigor—in a word, health—of their own bodily and mental constitution, will be the physiological integrity and mental character of their offspring. It should be universally known, too, that the passion which impels to procreation, lying at the very foundation of existence, is of necessity one of the most powerful of the propensities; and that, while its rational and legitimate exercise is conducive to health, moral purity, and intellectual vigor, its excessive indulgence or abuse is as conducive to physiological enervation and moral degradation.

It is the common consent of the medical world that libertines, drunkards, and gluttons, cannot have healthy children; but we ought to be able to trace the sources of infirmity beyond their grosser manifestations. Neither the father whose nerves are shattered by tobacco, whose digestion is disordered by improper food, whose constitution is impaired by drug medicines, or whose blood is often inflammatory with the violence of ungoverned passion; nor the mother whose muscular system is enfeebled, whose nerves are debilitated, or whose abdominal organs are contracted and rigid, and whose brain is constantly irritated by indolence, novel reading, constipating food, strong coffee, green tea, or the frequent indulgence of the passionate or fretful mood,

can do justice to the rising generation. If in any of these ways they "eat sour grapes," the children's teeth will certainly be "set on edge." In this way, too, do the sins of the fathers and mothers curse their own offspring through many generations.

The extremes of excessive toil and absolute indolence alike dispose to a vitiated organization; and we see the lamentable evidences equally among the wretched millions who toil incessantly for less than a sufficiency of food and raiment, and the profligate idlers of a more luxurious but scarcely better fortune. Nature never intended that constant labor should agree with the constitutions of a part of mankind, and constant idleness or dissipation be compatible with the rest. Those whose muscles are perpetually worked down to the point of absolute exhaustion, require all the rest and sleep they can get to replenish the muscular system; and the brains being but little exercised, will naturally degenerate, and they will propagate a race comparatively idiotic. Those who exert the brain intemperately, and suffer the bodily functions to decline, will subject their offspring to feeble constitutions and unbalanced minds; and those whose life is a dull round of indolent repose, or dissipation, will entail the bodily and mental qualities of grossness, vulgarity, debauchery, and selfishness.

A very common source of debility on the part of parents, and hence imperfect organization on the part of offspring, is the abuse of amativeness. No false delicacy can excuse those who assume to be teachers, for refusing to speak plainly on a matter which so much concerns human health and happiness; and I cannot better acquit myself in this duty than by making the following quotation from a recent work (*Organic Laws*), by J. Bradford Sax:

"The various organs and faculties of the parents are transmitted to the child with all their peculiarities and conditions. The perfection with which they are transmitted depends upon their degree of activity at the time of parentage; the more active they are at the time the more perfectly will they be inherited. Hence, in order to secure perfect offspring, it was provided that during the act of parentage all the organs and faculties of the body and mind in both parents, but especially in the father, should be stimulated to the highest possible degree of activity. Of course a corresponding reaction must afterward take place.

"Now it is impossible that such violent or intense vital stimulations and reactions should occur without an immense expenditure of nervous or vital energy on the fund of life. In point of fact, no act or function is so exhausting to the whole system as this. If indulged in to excess, no practice can possibly be so debilitating, depraving, and de-

structive to all the organs and faculties. Probably more of the nervous fluid or influence is expended in a single sexual crisis than would suffice to carry on all the ordinary vital operations, perhaps for days. If it is indulged in daily, or even weekly, the deluded subject need not hope for health or happiness."

In a recent and very excellent work (*Popular Education*) by Ira Mayhew, A.M., late Superintendent of Public Instruction in Michigan, the author remarks: "Physiologists in general coincide in the belief that a vigorous and healthy physical and mental constitution in the parents, communicates existence in the most perfect state to their offspring; while impaired constitutions, from whatever cause, are transmitted to posterity. In this sense, all who are competent to judge are agreed that the Giver of life is a jealous God, visiting the iniquity of the fathers upon the children unto the third and fourth generation of them that hate Him or violate His laws. Strictly speaking, it is not *disease* which is transmitted, but organs of such imperfect structure that they are unable to perform their functions properly, and so weak as to be easily put into a morbid state or abnormal condition by causes unimpaired organs are unable to resist."

The Marriageable Age.—Ample statistical data have settled the question that the first children of those who marry very young are more animal and less moral and intellectual than those born nearer the middle period of the life of the parents. Extensive observation has also established the position, that the great majority of men and women, morally and intellectually eminent, have been among the younger children of the family. The elevation and improvement of the race, therefore, seems to be adversely affected by early marriages. The soundest physiologists and phrenologists regard twenty-two to twenty-five for the female, and twenty-five to thirty for the male, as the most appropriate ages for assuming the serious duties as well as participating in the pleasures of matrimonial life.

Physiological Law of Marriage.—Physiologists are divided on the question, whether organizations similar or unlike are most conducive to vigorous offspring. Phrenologists generally maintain that temperaments decidedly different, provided those differences are not extreme, make the most fortunate alliances for the offspring; and the same principle is held in relation to the mental organs. This proposition is strongly corroborated by the favorable results of cross-breeding in the lower animals, and even from the cross-marriages of the people of different nations, so far as observations have been recorded. I ap

prehend, however, that this law, if it be a law, derives its principal importance from the erroneous habits and customs of society. People who "live, move, and have their being" under one dull, monotonous routine of surrounding circumstances, will become mentally stupid, and physiologically indolent and sensual, for want of suitable external circumstances to call out the mind and exercise the body; and here cross-breeding, or the union of different temperaments, tastes, habits, fashions, and differently-developed faculties, will tend to excite and cultivate the powers of both parties. But when both parties are healthfully developed in body and mind, actively yet not drudgingly engaged in some occupation which gives free exercise to all the functions and faculties, the voluntary habits being at the same time physiologically correct, there is not, certainly, an equal reason, if, indeed, there is any, to seek for aught save the most congenial tempers.

CHAPTER III.

PHYSIOLOGY OF THE FŒTUS.

Fœtal Development.—About two weeks after impregnation, the new organization becomes about as large as a pea, and its two envelopes, or membranous coverings, called *chorion* and *amnion*, with a gelatinous substance inclosed between them, are distinctly visible. A thin membrane is also formed over the whole internal surface of the uterus, called the *decidua*. Soon after a small white thread-like substance appears, which is the commencement of the brain and spinal marrow; before the twentieth day the eyes are visible; and before the first month is completed a cartilaginous or grisly substance indicates the future bones.

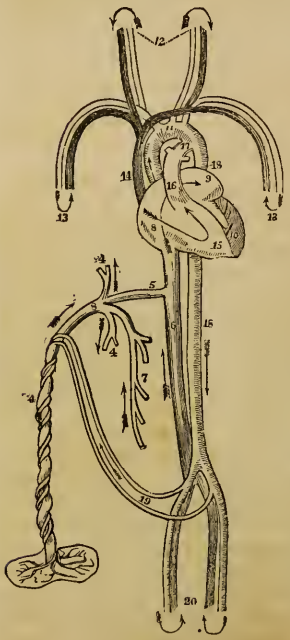
In the second month the cartilage begins to harden into bone, the rudiments of the teeth are visible, the general form is developed, and it is about an inch in length. During the third month the heart is developed, and, although without blood, has a slight degree of motion. At the end of three months, the eyelids are distinct, the lips perfect, the fingers and toes apparent, the heart beats forcibly, and all parts are well defined, the weight being two or three ounces, and the length four or five inches. In the fourth month the muscles become distinct, the brain and spinal marrow firmer, the abdomen covered with integument; a large portion of the bony structure is ossified, the rudiments

of the second set of teeth are seen under the first, and the substance called *meconium*, begins to collect in the bowels.

Near the middle of the fourth month, the uterus rises above the pelvis into the cavity of the abdomen, when the mother becomes remarkably sensible of the motions of the fœtus. This period has been called *quickening*, upon the erroneous supposition that the fœtus then first became endowed with life; but it is truly alive from the moment of conception. Sickness at the stomach, tendency to faintness, etc., denote the disturbance occasioned by the sudden change of position.

From four to nine months the general development is more rapid. In the fifth month the situation of the nails can be discerned, the weight is about one pound, and the length about nine inches. In the sixth month the head becomes downy, and the nails marked; the weight increases to one and a half or two pounds, and the length to twelve inches. During the seventh month the hair is perfected, the nails fully formed, the bones are comparatively firm, the meconium collects lower down in the large intestines; weight about three pounds; length about fourteen inches. Many children are capable of being raised if prematurely born at this period, and even in some cases if born a month or two earlier. During the eighth and ninth months, no new phenomena present, but every part acquires a firmer consistence, and all the functions become more active.

Fig. 296.



FŒTAL CIRCULATION

Fœtal Circulation.—Until quite recently the opinion prevailed that the blood of the mother circulated directly through the vessels of the fœtus; but it is now known that the fœtus has a sort of independent existence, although

its nutrient materials are of course derived from the mother. The mother secretes the substances of nutrition, which, by coming in contact with the fœtus, are absorbed; and, after being modified in their passage through the placenta, are digested and assimilated. Fig. 296 is a representation of the fœtal circulation.

1. The umbilical cord, consisting of the umbilical vein and two umbilical arteries; proceeding from the placenta (2.) 3. Umbilical vein, dividing into three branches; two (4. 4), to be distributed to the liver; and one (5), the ductus venosus, which enters the inferior vena cava (6). 7. Portal vein, returning the blood from the intestines, and uniting with the right hepatic branch. 8. Right auricle; the course of the blood is denoted by the arrow, proceeding from 8 to 9, the left auricle. 10. Left ventricle; the blood following the arrow to the arch of the aorta (11), to be distributed through the branches given off by the arch to the head and upper extremities. The arrows, 12 and 13, represent the return of the blood from the head and upper extremities through the jugular and subclavian veins, to the superior vena cava (14), to the right auricle (8), and in the course of the arrow through the right ventricle (15), to the pulmonary artery (16). 17. Ductus arteriosus, which appears to be a proper continuation of the pulmonary artery; the offsets at each side are the right and left pulmonary artery cut off; these are of extremely small size as compared with the ductus arteriosus. The ductus arteriosus joins the descending aorta (18, 18), which divides into the common iliacs, and these into the internal iliacs, which become the hypogastric arteries (19), and return the blood along the umbilical cord to the placenta; while the other divisions, the external iliacs (20), are continued into the lower extremities. The arrows at the terminations of these vessels mark the return of the venous blood by the veins to the inferior cava.

The pure blood is brought from the placenta by the *umbilical vein;* this vein passes through the umbilicus, and enters the liver, where it divides into several branches, two or three of which are distributed to the left lobe of the liver; one branch communicates with the portal vein in the transverse fissure, supplying the right lobe; and a large branch, the *ductus venosus*, which, passing backward, joins the inferior cava. In the inferior cava the pure blood is mixed with that which is returning from the abdominal viscera and lower extremities, and is carried along through the right auricle, guided by the Eustachian valve, and through the *foramen ovale*, into the left auricle. From the left auricle it passes into the left ventricle, thence into the aorta, and, by means of the carotid and subclavian arteries, is distributed to the head and upper extremities. The impure blood is returned from the head and upper extremities by the superior vena cava to the right auricle; from this it is propelled into the right ventricle, and thence into the pulmonary artery. As the lungs are solid and impervious, only a small quantity can pass into them, and hence the greater portion passes through the *ductus arteriosus* into the commencement of the descending aorta, where it is mingled with that portion of the pure blood which is not sent through the carotid and subclavian arteries. Passing along the aorta, a small quantity of this mixed blood is distributed by the external iliac arteries to the lower extremities; the greater part is con-

veyed by the internal iliac, hypogastric, and umbilical arteries to the placenta; the hypogastric arteries proceeding from the internal iliacs, and passing by the side of the fundus of the bladder, and upward along the anterior wall of the abdomen to the umbilicus, where they become the umbilical arteries.

"From a careful consideration of this circulation," says Dr. Wilson (*Human Anatomy*), "we perceive, 1st. That the pure blood from the placenta is distributed in considerable quantities to the liver before entering the general circulation. Hence arises the abundant nutrition of that organ, and its enormous size in comparison with other viscera.

"2dly. That the right auricle is the scene of meeting of a double current, the one coming from the inferior cava, the other from the superior, and that they must cross each other in their respective course. How this crossing is effected, the theorist will wonder; not so the practical anatomist; for a cursory examination of the fœtal heart will show. 1. That the direction of entrance of the two vessels is so opposite, that they may discharge their currents through the same cavity without admixture. 2. That the inferior cava opens almost directly into the left auricle. 3. That by the aid of the Eustachian valve, the current in the inferior cava will be almost entirely excluded from the right ventricle.

"3dly. That the blood which circulates through the arch of the aorta comes directly from the placenta; and, although mixed with the impure blood of the inferior cava, yet is propelled in so great abundance to the head and upper extremities, as to provide for the increased nutrition of those important parts, and prepare them, by their greater size and development, for the functions which they are required to perform at the instant of birth.

"4thly. That the blood circulating in the descending aorta is very impure, being obtained principally from the returning current in the superior cava, a small quantity only being derived from the left ventricle. Yet it is from this impure blood that the nutrition of the lower extremities is provided. Hence we are not surprised at their insignificant development at birth; while we admire the providence of nature that directs the nutrient current, in abundance, to the organs of sense, prehension, and deglutition: organs so necessary, even at the instant of birth, to the safety and welfare of the creature."

The *foramen ovale* becomes gradually closed by a membranous layer which separates the two auricles. As soon as the lungs are inflated by inspiration, the blood of the pulmonary artery rushes through its right and left branches into the lungs, to be returned by the pulmonary veins to the left auricle.

The Thymus Gland.—This structure is situated on each side of the trachea in the neck, resting against the pericardium, and extending from the fourth rib upward to the thyroid gland. It becomes perceptible between the second and third months of embryotic existence, and continues to increase in size until the seventh month; during the ninth month it suddenly enlarges again, weighing then nearly an ounce. After birth it enlarges during the first year, and then gradually diminishes, almost disappearing at puberty. It is composed of numerous lobules, containing secretory cells, and its office appears to be to prepare nutrient material until the digestive function is fully developed.

The Placenta.—This is a spongy, vascular mass, found at the surface of the chorion, and adherent to the uterus, which exists in some form in all mammalia. It possesses little or no sensibility, hence it has little or no nervous structure. It is to the fœtus what the lungs are to the adult, serving for the aëration of the blood of the former until respiration brings the blood in contact with atmospheric air in the lungs. Fig. 297 represents the placenta with the umbilical cord attached. The diameter of the placenta is usually about six inches, and its thickness an inch and a half.

Fig. 297.

PLACENTA AND CORD.

Physiologists do not agree whether the vessels of the placenta terminate in or communicate with those on the uterus; or whether, in its uterine portions, there are intermediate cells in which the arteries terminate, and from which the veins commence. Nor do they agree whether any portion of the blood of the fœtus actually circulates through the heart, lungs, etc., of the mother. From all the investigations which have been made, my own conclusion is, that the placenta serves, in part, to purify the blood; and that the blood of both mother and fœtus mingles, to some extent, in the placenta, in consequence of the placental vessels extending into the uterine sinuses; and that, further, while the blood of mother and fœtus act and react upon each other in the substance of the placenta, in a manner analagous to the action between water and blood, in the bronchial vessels of aquatic

animals, some portion of the blood of the fœtus does actually go the round of the mother's circulation.

The Umbilical Cord.—The *funis*, *cord*, or *navel-string* forms the connection between the placenta and child. It is composed of two arteries and a vein, and, like the placenta, is insensible. The arteries wind spirally around the vein from right to left, forming in their course a number of loops or knots. The length of the cord varies greatly; its average is eighteen or twenty inches. The pulsation of the cord, which is usually strong and distinct, ceases in ten, fifteen, or twenty minutes after birth, and the portion attached to the child shrinks and falls off in five or six days.

The Liquor Amnii.—This term is applied to the fluid which collects in the cavity of the amnion; it is secreted by the internal surface of this membrane, and its quantity varies from a pint to several quarts; the average is from one to two pounds. It serves as nutriment to the fœtus; to allow it free motion; to diminish the force of blows, shocks, and sudden movements, and also assists in dilating the os uteri during labor.

CHAPTER IV.

OBSTETRICAL ANATOMY

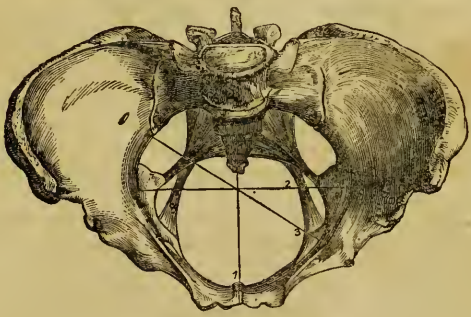
Bones of the Pelvis.—The *ossa innominata* form the pelvis laterally and in front, each of which is divided into the *ischium*, or sitting-bone; *ilium*, or hip or haunch-bone; and *pubis*, or share-bone, as heretofore explained; and the sacrum and coccyx behind. The *brim of the pelvis* is defined by the ilio-pectineal line. All below this line is called the *true* or *lower pelvis;* while the *false* or *upper* pelvis, which is really the lower part of the abdominal cavity, is immediately above. The brim of the pelvis is of an oval form, except where it is broken by the projecting part, or promontory, of the sacrum posteriorly.

Cavity of the Pelvis.—This is bounded by the sacrum behind, the ischium laterally, and the pubis in front. It is of unequal depth, measuring five to six inches posteriorly, three inches and three fourths from the brim to the tuber ischii, and from two inches to two and a

half anteriorly at the symphisis pubis. The bones of the pelvic cavity are smooth on their inner surface, and present a series of inclined planes, tending at first downward and slightly backward, then downward and forward. The brim or upper margin of the cavity, which is its narrowest part, is called the *superior strait*; and the lower or outlet, the *inferior strait*. This outlet is of an oval shape, but irregular; its lateral boundaries are immovable, but its antero-posterior diameter can be extended on account of the mobility of the coccyx.

Diameters of the Pelvis.—The three principal diameters are

Fig. 298.



DIAMETERS OF THE PELVIS.

represented by the lines in fig. 298. They are the *antero-posterior* (1), from the prominence of the sacrum to the inner and upper edge of the symphisis pubis; the *transverse* (2), across the widest part of the brim, at right angles to the antero-posterior; and the *oblique* (3), from the sacro-iliac junction of one side to the opposite side of the brim, just above the acetabulum. The average admeasurements of these diameters are: antero-posterior, four inches; transverse, five inches; and oblique, four and three fourths. Half an inch either way may be allowed for variations. The circumference varies from thirteen to fifteen inches.

The only practical importance of these admeasurements is in cases of deformities, disease, or mal-presentations. In ordinary cases nature will accomplish her work just as well without our knowledge of obstetrical anatomy as with it.

Deformities of the Pelvis.—The bones of the pelvis may be

distorted in a variety of ways, and to an extent which renders labor tedious and protracted, or entirely impossible. These cases, however, are extremely rare, and it not unfrequently happens that the aggregate

Fig. 299.

OBLIQUE DISTORTION

of the diameters is not materially affected. Fig. 299 is a representation of one of the most common deformities. The usual causes are rickets in infancy, and *mollities ossium*, or softening of the bony structure, in adults. The brim of the pelvis, or superior strait, is most frequently affected by deformities, so that if the child's head can enter the cavity, the delivery will almost always be accomplished naturally, although the labor may be greatly prolonged.

The extreme distortion in the antero-posterior diameter of the brim

Fig. 300.

ANTERO-POSTERIOR DISTORTION.

of the pelvis, is seen in fig. 300. This is one of the conditions which render natural labor impossible, although slight deformities in this respect are usually overcome by the natural efforts.

CHAPTER V.

PREGNANCY.

Signs of Pregnancy.—The cessation of menstruation at the usual period of its occurrence is among the first indications, though not in itself conclusive of pregnancy. Most women experience some degree of nausea, and sometimes vomiting on rising, called morning sickness; this usually begins in the fifth or sixth week, and continues to the end of the third month. Salivation sometimes, though not often, attends. The breasts manifest an uneasy sensation of fullness about two months after conception; throbbing and tingling pains succeed, and they soon increase in size and firmness, become knotty, and the areola around the nipples darkens; these are the most unequivocal of all the signs of pregnancy. The enlargement of the abdomen is gradual from the first, although in some cases it becomes a little flatter for a month or two. Quickening occurs usually during the fourth month, after which the motions of the fœtus are decisive.

Duration of Pregnancy.—The natural duration of pregnancy has usually been reckoned at nine calendar or ten lunar months, or two hundred and eighty days. A majority, probably, are born in the fortieth week; nearly as many in either the thirty-ninth or forty-first; many births take place in the thirty-eighth, forty-second, and forty-third weeks; and they are not very unfrequent in the thirty-seventh, forty-fourth, and forty-fifth weeks. The ordinary period seems therefore to range from two hundred and fifty-two to three hundred and sixteen days. The commencement of pregnancy is generally dated two weeks subsequent to the last appearance of menstruation; yet this calculation is liable to an error of between two and three weeks.

Extra-Uterine Pregnancy.—In some extraordinary instances, the precise causes of which we can never understand, the ovum is impregnated, and remains in the ovary, fallopian tube, or the inter-

space in the walls of the uterus. In all these cases the general signs of pregnancy are more or less apparent, while the enlargement of the abdomen is confined to one side, and develops very much like an ordinary tumor, with a sense of weight, uneasiness, heat, and pain. Sooner or later the cyst which incloses the fœtal mass ruptures, the child dies, and the surrounding parts either accommodate themselves to their peculiar circumstances as well as may be, and allow the organic remains to occupy the part for an indefinite period, or make an effort to remove the fœtus by the formation of an abscess opening externally, or a fistulous communication to the vagina or rectum, through which the osseous parts of the mass are discharged.

The practitioner must here restrict his or her duty to keeping the patient quiet, attending to the general health, especially keeping the stomach and bowels easy, and soothing all local inflammation, always recollecting that nature best accomplishes what she undertakes in her own way.

Superfœtation.—The occurrence of a second conception before the termination of the first, has been regarded as impossible by many authors; yet there are some well-authenticated cases on record. Sometimes both fœtuses are fully developed, and the second born several months after the first; in other cases, one fœtus is expelled in a half-formed or blighted condition. Practically we are to regard the latter variety as a case of abortion.

Pathology of the Fœtus.—Nearly all the maladies to which the child is subject may affect the fœtus; and when we consider how unhealthfully the majority of females live while in the pregnant state, and how readily the organic instincts, true to the all-pervading law of self-preservation, throw the morbid conditions of the mother upon the new being within, it seems almost wonderful that so great a majority can live until the time for being born arrives. But the fœtus does often die in the uterus, and it is sometimes important to ascertain the fact. The signs are: a cessation of its motions; flaccidity or falling in of the abdomen; recession of the umbilicus; a sensation of coldness, and of a dense weight in the abdomen; the breasts suddenly becoming flaccid; to which may be added a loose feeling of the uterine tumor, failing health, sunken countenance, dark areola round the eyes, fœtid breath, frequent chills, etc. Here, as usual, we are to "trust to nature." At an uncertain time the uterus will expel its contents, and the treatment required is the same, in all essential particulars, as for ordinary abortions.

Hygienic Management during Pregnancy.—Those females who would escape the usual and dangerous maladies which frequently accompany pregnancy, and avoid in a great degree the ordinary pains of childbirth; and, above all, those who would be mothers of *healthy* children—healthy in body and mind, in constitution and in disposition—must observe attentively and obey inviolably a few simple hygienic precepts. 1. All high-seasoned, high-salted, and complicated dishes must be abstained from. The whole course of diet must be plain and simple, and *coarse* enough to keep the bowels always free. Animal food, if used, should not be taken more than once a day. 2. All drugs must be eschewed, especially every thing of the narcotic kind, as opium and its preparations, which have a direct tendency to stupefy and enfeeble the future being. 3. Some form of bath must be taken daily; a towel wash will answer, and it need not be very cold; about 70° will do very well; and if the patient is very sensitive or feeble, it may be taken in a warm room. Pregnant women usually *bear* cold water remarkably well. 4. The hip-bath should be frequently employed, especially near the period of delivery. For a month or two preceding the expected time it should be employed daily; this may not be so cold as to be particularly disagreeable; 65° to 70° in temperature, and five to ten minutes in time, is a good general rule. 5. The patient must keep on her feet a good part of the time during the whole term. She may walk frequently in the open air, or do house-work, or exercise in any easy manner in the erect attitude. Nothing is more likely to induce a wrong position of the child in the womb, or a painful, lingering labor, than pressing and cramping the abdomen by sedentary habits. Females who are compelled to work with the needle, or sitting at a work-table, should be particularly careful at all times to maintain an upright posture. Adhesions of the afterbirth, flooding, tumors, and inflammations of the parts are frequently owing to the compression produced by a misposition of the body. 6. Excessive labor and violent exertions, also strong mental passions, or depressing emotions, are to be avoided as far as possible.

Accidents of Pregnancy.—Medical books give us a formidable catalogue of "diseases of pregnancy;" but I think the phrase is another of those misnomers which are so plentiful in the books, and so well calculated to mislead. Diseases *during* pregnancy are common enough; but so far from being naturally *of* that condition, they are merely the evidences of the *unnatural* habits or circumstances of the individual.

The familiar fact that those diseases which rapidly exhaust the vitality of the body, as consumption, are suspended during pregnancy, to re-

appear with all their formidable and fatal array of symptoms soon after the completion of the reproductive function, sufficiently attests the principle that nature is true to her own purposes, and that all diseases during pregnancy are entirely fortuitous.

Abortion, which is the expulsion of the fœtus before the sixth month, and *premature labor*, its expulsion between the sixth month and maturity, are the most painful disorders or accidents attending pregnancy. The danger is usually in proportion to the hemorrhage. The common causes are general or local debility—"inward weakness"—violent mental perturbation, and bodily shocks or injuries. Leucorrhœa is the cause of the greatest number of miscarriages. Excessive sexual indulgence is also a frequent cause.

The *symptoms* of miscarriage are, an unusual sense of languor, uneasiness, and weariness, with aching or pain in the back, followed after a few hours or days by a slight discharge of mucus or blood from the vagina, and bearing-down pains; these are at first felt in the back, extending around the loins to the abdomen, and down the thighs, recurring at regular intervals, and increasing in strength and frequency; in most cases the pain is as great as in labors at the full term. In some cases the ovum is expelled with but little pain, and sometimes the fœtus is expelled and the membranous shell of the ovum retained for many days, and perhaps finally passed off in a dissolved state with the lochia. Hemorrhage seldom continues after the expulsion of all parts of the ovum, but until then it is to be apprehended. As a general rule, the flooding is less the nearer gestation approaches maturity.

Our first *treatment* should be preventive; but if the case has progressed too far, the flooding requires our principal attention. Allopathic authors deal largely in opium, ergot, sugar of lead, and the forcible extraction of the ovum with instruments, and even bleeding from the arm. These drugs and destructives are *never* necessary, but *always* injurious; in fact, they often injure the constitution much worse than the abortion does.

The patient should recline in an easy, recumbent posture, the wet bandage be applied around the abdomen, and changed several times a day, and two or three vaginal injections of cold water employed daily. When the flooding is excessive, and in cases of internal hemorrhage, denoted by headache, great lassitude, shiverings, frequent and feeble pulse, and the patient becoming pale, exhausted, and faint, with a dark shade under the eyes, the tampion may be employed with advantage, or a silk handkerchief, wet in the coldest water, or inclosing a cylindrical piece of ice or snow, may be introduced into the vagina as far as convenient; it may remain for six or eight hours, and then be in-

troduced again if necessary. Enemata of the coldest water are also valuable auxiliaries in severe cases. In all cases it is important to have the room well ventilated, and the patient placed on a cool and rather hard bed or mattrass. The inexperienced attendant should not be unduly alarmed at the *faintness* which takes place after severe or protracted flooding, for it generally happens that this condition favors the formation of a clot or coagulum, which obstructs the bleeding vessels and effectually arrests the hemorrhage. It is not uncommon for patients to remain an hour or two in a state of *deliquium animi*.

Morning sickness, when very troublesome, is best alleviated by a light, dry evening and morning meal, as Graham crackers, toasted bread, etc.

Toothache may be relieved by eating very sparingly for a day or two, and careful attention to the bowels.

Cramps, for which the old-school practice is, bleeding and laudanum, may be quieted by rubbing the lower limbs with a cold wet cloth, followed by dry friction.

Constipation is more apt to occur in the early than the later months of pregnancy. It requires coarser food and water-injections.

Piles, which have previously affected the patient, are liable to reappear or become aggravated. Frequent sitz-baths should be employed, with a small, cold injection immediately before each stool.

Pruritus, or itching of the genital organs, may be relieved in the same way; if excessive, warm water is more soothing than cold.

Heartburn, *sick headache*, *sleeplessness*, and *salivation*, are among the unpleasant incidents that are occasionally presented. They are to be treated in the same way as morning sickness. Frequent sips of cold water are very soothing in most of these cases; and when the sick headache is attended with prolonged nausea and retching, warm water should be drank freely until the stomach feels easy, or vomiting occurs.

Cravings or *longings* for improper food should *not* be gratified. There is vastly more danger of "marking the child," by improper indulgences on the part of the mother, than by proper self-denial. If the mother takes proper care of her general health, and keeps all unhealthy articles out of her stomach, the trouble from this source will be of little consequence.

Pains in the breasts are sometimes severe. They may always and safely be relieved by cold wet cloths, covered with dry; except when of a spasmodic or neuralgic character, in which case warm fomentations are appropriate.

Excessive vomiting sometimes occurs, and may be so severe as to on

danger abortion. Fasting, and cold water-drinking, are the special remedies.

Pain in the side—usually the right—often occurs after the middle period of pregnancy; it is rarely severe, but generally constant. Bleeding, leeching, cupping, and blistering have been perseveringly prescribed for it by "old-school" doctors, but without the slightest benefit in the great majority of cases. The wet bandage and hip-bath are the better remedies.

Difficulty of breathing frequently affects the patient more or less toward the completion of the term; in some cases it is attended with severe *cough*. Indolence or over-exertion are alike to be regarded in the treatment. Great fatigue of body or mind should be avoided. Lifting heavy articles, running up stairs, walking too fast, are among the excesses against which the patient should be cautioned.

When *hemorrhage* occurs, it is to be regarded as a premonition of abortion, and treated accordingly.

Diarrhea is among the unusual occurrences. The treatment is, hip-baths, the abdominal bandage, cold injections, and a strict dietary.

Difficult urination sometimes proves very annoying. When it amounts to actual retention, the catheter may have to be employed; this, however, is extremely seldom. Cold hip-baths and bandages are usually sufficient. Foot-baths are also useful; and in severe cases the warm hip-bath, immediately followed by the cold, will often relieve.

Varicose veins, with a swelling and knotty appearance of the lower extremities, sometimes result from the obstructed circulation occasioned by the pressure of the uterine tumor on the adjacent blood-vessels. Attention to the general health, and a judicious regulation of the amount of exercise—neither too much nor too little—are all the therapeutic indications in this case.

Hysteria is named among the "diseases of pregnancy" by authors. I have never known it to occur in females whose hygienic habits were reasonably correct; and the affection is probably always attributable to novel reading, exciting company or parties, stimulating drinks, irritating food, cathartic and opiate medicines, etc. The treatment is wholly negative—an avoidance of these causes.

Convulsions are less frequent occurrences than hysterical paroxysms, but are produced by the same general causes, and can be prevented or cured by their avoidance or removal.

CHAPTER VI.

PARTURITION.

RATIONALE OF LABOR.—Many ingenious, if not profound speculations, have been written by medical philosophers, to explain *why* the fœtus and its appendages are expelled from the womb at about the end of ten lunar months, or two hundred and eighty days. As well might they have expended their learning in endeavoring to divine why man arrives at a given stature, and then ceases to grow; or why the earth performs its circuit around the sun in three hundred and sixty-five days, instead of a longer or shorter period. We are sufficiently wise for "our being's end and aim," if we know the fact that *it is so*. But the physiology of parturition, which it behooves us to understand, is easily explained.

As the ripened fruit drops from its parent stem, so the fœtus, when sufficiently developed for independent existence, is separated from its parental connection. A slight discharge of mucus, often more or less tinged with blood, called *labor-show*, and which serves to lubricate and prepare the parts for the requisite distention, is the first decisive indication of approaching labor. Wandering pains about the back, around the abdomen, and down the thighs, gradually becoming fixed and regular, with intervals of perfect ease, denote the preparation going on in the uterine region. Each labor "*pain*" is produced by a distinct, periodical contraction of the longitudinal and circular fibres of the uterus, which diminish its diameter and dilate its mouth. These contractions, and consequent pains, are renewed at certain intervals until the dilatation is sufficient to permit the passage of the child without injury to the soft parts. The pain experienced by the patient bears no very near relation to the force of the contraction of the uterus, but is rather measured by the healthful condition or morbid sensibility of the parts. Those who live healthfully, suffer but little; while many of opposite habits, endure the most excruciating agonies.

In the early stage of labor, the pains are called *cutting* or *grinding;* they are of an acute and stinging character, and are occasioned by the stretching of the fibres of the os uteri. In the second stage, the contraction of the uterus is aided by the contraction of the abdominal muscles—some writers say the *voluntary* efforts of the patient; but this

action takes place whether the patient wills it or not—when the patient is *obliged* to co-operate with the expulsive effort, by holding her breath, and then the pains are called *forcing*, or *bearing-down*. The forcing or expulsive pains gradually increase in severity, but the patient usually bears them better as the labor approaches its termination. Says Dr. Churchill (*System of Midwifery*): "The amount of suffering depends a good deal upon the temperament of the patient, and upon the habits of life among savages it appears slight, but it is excessive in civilized life." There is an important lesson implied in the above quotation. Happy will it be for those mothers who can appreciate and apply it.

The remarkable peculiarities of labor pains are, their periodicity; the intervals of perfect ease, during which the patient is often inclined to sleep; each uterine contraction gradually increasing to its maximum of force, and then suddenly subsiding, the intervals of rest diminishing, and the length of the pain increasing as the labor advances. The membranes are sometimes ruptured, and the water of the amnion discharged at the commencement, and sometimes not till very near the conclusion of labor; and not unfrequently the water escapes on the first occurrence of the premonitory pains. Sometimes the membrane does not rupture at all, and the child is expelled entirely inclosed—in common parlance, "born with a vail."

The Pains of Childbirth.—An erroneous interpretation of Scripture has caused the opinion to prevail extensively in the civilized world, that great suffering is the ordained law of woman in childbirth; and this error has had a paralyzing effect on the popular mind, and caused the sufferers to submit reverently to their fate, instead of seeking the true light of physiology on the subject. If Eve was sentenced to bring forth in sorrow, it was because of her personal transgression. Show me a woman on earth who agonizes through the period of parturition, and I will prove her to have transgressed the laws of health in her own person; and conversely, find me a mother who lives physiologically, and I will show you one with whom the act of childbirth has neither agony nor terror.

The philosophy of this matter is admirably expressed in a little work (*The Curse Removed*), by Dr. T. L. Nichols: "The women of nature have no such word as 'confinement'—a word so appropriate in civilization. The great truth to be learned by every body is, that gestation and parturition are natural processes. It is as natural for a woman to bring forth children, as for a shrub to produce flowers and fruit; and her organs are as naturally adapted for the purpose. In a state of

health no natural process is painful. Pain is, in all cases, the sign of d.sease. It has no other use or signification. With a sore throat, it is painful to swallow; with a diseased stomach, digestion is painful; so is childbirth painful to a diseased nervous system, but never to an entirely healthy one.

"It is not credible that any natural function should be attended with pain in a healthy state of the system. All nature protests against the idea—all experience is opposed to it. Causes and effects are too well adapted to each other—ends and means too admirably fitted. This world is the work of infinite power and benevolence; all the human system is the masterpiece of all this fair creation. It is not to be supposed that the most important of all the functions of the most perfect of created beings, of whom we have any knowledge, should be subject to inevitable pain and peril in its performance. Such a belief is an insult to Providence. When God looked upon His creation, and pronounced it good, He could not have overlooked the most important function of His last and most perfect work; and there can be no question that in the original creation of woman, she was fitted to obey the command, 'Increase and multiply, and replenish the earth,' without peril or pain. The very idea of the curse inflicted upon her carries with it the belief, that she was originally created perfect in this particular.

"What, then, has made the change? Why is woman subjected to all her pains, sufferings, outrages, and perils, in the performance of the great function of her life? It is because the forbidden fruit of enervating luxuries and excesses is continually eaten. And just in proportion as woman transgresses the laws of nature, which are the real and unquestionable commands of God, just so far are they subject to the curse.

"Man has it in his power to incur all direct curses by transgression, or to avoid all curses and invoke all blessings by obedience to the divine law. Industry makes of the barren earth another Eden. Temperance and cleanliness give health, and health brings happiness in all the duties of life. So it is with woman. Indolence, self-indulgence, voluptuousness, and all the sins against the laws which God has written in the structure of our bodies, bring with them the curse of deranged nervous systems, broken health, irregularity of function, disease, pain, and premature death. Every woman is an Eve, and forbidden fruits are all around her. If she listen to the voice of the beguiling serpent, hers is the wo. But, on the other hand, faith in God, obedience to His laws, and living in harmony with His works, assure to woman health, and safety, and joy, in fulfilling all her destiny. These are

truths pregnant with meaning, and incontrovertible as the principles of nature."

Mrs. Pendleton remarks *(Parent's Guide)*: "It is a well-established fact, that women are to be found in almost every country who suffer no pain in childbirth. Now, as a natural law never admits of an exception, this exemption from pain could not occur in any individual, unless it were fairly within the capabilities of the race."

Mrs. Gove—now Mrs. Dr. Nichols—testifies *(Lectures to Ladies)*. "I know many mothers who, with their husbands, have adopted the 'Graham System,' or, in other words, those correct habits recommended in these lectures (that is, attention to diet, exercise, and bathing freely and constantly with pure, cold water), and those mothers have abridged their sufferings in parturition from forty hours to *one hour*, and have escaped altogether the deathly sickness of the three first months of gestation."

George Combe observes *(Constitution of Man)*: "The sufferings of women in childbed have been cited as evidence that the Creator has not intended the human being, under any circumstances, to execute all its functions free from pain. But, besides the obvious answer that the objection applies only to one sex, and is therefore not to be too readily presumed to have its origin in nature, there is good reason to deny the assertion, and to ascribe the sufferings in question to departures from the natural laws, in either the structure or the habits of the individuals who experience it."

The late Dr. Andrew Combe wrote: "If women in childbed could be convinced, from previous knowledge, that, as a general rule, the danger attending that state is proportioned to the previous sound or unsound condition of the system, and to its good or bad management at the time, and is not the mere effect of chance, they would be much more anxious to find out, and successful in observing, the laws of health, both for their own sakes and for the sake of the future infant, than they now are, while ignorant of the influence of their own conduct."

Dr. Eberle's opinion (*Theory and Practice*) is to the same effect: "The pregnant female, who observes a suitable regimen, will, *cæteris paribus*, always enjoy more tranquillity both of mind and body, and incur much less risk of injury to herself and child than she who, giving a free rein to her appetite, indulges to excess, or in the use of improper articles of food."

Dr. Dewees, Professor of Obstetrics in the Medical School of Pennsylvania, has argued (*Thesis on Childbirth*) that "Pain is a morbid

symptom, the consequence of artificial modes of life and treatment, and can be avoided by appropriate habits and treatment."

In corroboration of this already conclusive weight of authority, I can add, that I have known females in the city of New York adopt a reform system of living—a plain, simple, vegetable diet, with a daily cold bath, and go through the period of gestation without losing an hour from sickness, the ordeal of parturition with no assistant or attendant in the room save the husband, take the entire charge of the child from the moment of its birth—assisted, of course, by its other parent—and "recover" without experiencing a single symptom of any one of the numerous diseases so common to the lying-in period. This shows that nature can be returned to, as well as departed from, even among civilized people.

I am aware that the easier labors of the less civilized portions of the human family are accounted for by some on the supposition that the children have smaller heads. There is something in this circumstance, no doubt; but if the mother lives properly, and the fœtus is healthfully nourished, the osseous structure will be so elastic and pliable that the size of the head, though larger among the educated classes, will constitute no serious obstacle to easy delivery.

Among the improper habits which are the sources of the pains and perils of childbirth, improper food, unquestionably, ranks foremost. The immediate causes of the pains are a rigidity and inflexibility of the soft structures on the part of the mother, and advanced ossification of the bones of the cranium on the part of the child. Acting upon this theory, Mr. Ramsbotham, of London, instituted an experiment, which was published in 1841 (*Essay on Human Parturition*), for the purpose of securing safe and easy delivery. The experiment succeeded perfectly; and, although I do not explain the result as others have, the facts are just as interesting. Mr. Ramsbotham restricted the patient principally to vegetables and fruits; farinaceous articles, as wheat, barley, beans, peas, rice, and especially fine wheaten flour, being but sparingly employed on account of the phosphates of lime and magnesia they contain. Mr. R.'s idea was, by withholding some portion of the natural bony constitutents, to de-ossify the systems of both mother and child to some extent—to produce an absolute *abnormal* state—trusting to a more farinaceous diet, after parturition, to supply the requisite elements of bone. The same experiment has been repeated in this country in several cases, and always successfully.

Now I think the whole explanation is furnished by the principle of a more plain, and simple, and less concentrated diet. Such a dietary will always keep the system open and unobstructed, and the excre-

tions free, so that the superfluous particles of earthy matter, if any exist in the farinaceous articles, will be readily washed away. The real objection to urge against farinaceous food is, that being highly nutritious, most persons, without a large admixture of fruits and vegetables, are very apt to eat too much. I agree entirely with Mr. R., that the diet is far the most important of any one of the hygienic considerations affecting the security or happiness of the pregnant female, or the health of her offspring.

Medicating Labor Pains.—The fashion of giving ergot and other "forcing medicines" to expedite delivery, has prevailed to an alarming extent; happily, however, it is now on the decline. But the anæsthetic agents, ether and chloroform, are threatening to have "a run" among ever-changing medical fashions. Among the advantages alleged by Dr. Stearns, who first introduced the employment of ergot in 1807, was "saving to the accoucher a considerable portion of time." *Perhaps* an hour or two of a doctor's time is more precious than the health of the infant—and perhaps not. "The pains induced by it," says Dr. Stearns, "are *peculiarly forcing*." Again says the doctor, "since I have adopted the use of this article, I have seldom found a case that *detained me more than three hours!*" Dr. Beck tells us the profession is divided on the question, "Whether the use of ergot has an injurious influence on the child—some maintaining that its common use is the principal cause of the increasing number of still-born children." Now it is perfectly clear, that if it forces the uterus to rapid and extraordinary "forcing" contractions, it must to precisely that extent expose the mother to tearing and laceration of the soft parts, and endanger an injurious and fatal compression of the child's head in the passage; and further than this, if the child is not soon born after its administration, the narcotic properties of the drug—which are known to be potent—may narcotize or destroy the child through the medium of the circulation. The only plausible argument which has ever been advanced for its use is, that the strong uterine contraction which it induces, will tend to the prevention of hemorrhage. But when it is considered that there is no danger of hemorrhage under ordinary circumstances, and that, in those extraordinary cases in which it does occur, we have a surer resource in simple cold water, the argument appears almost foolish. As long ago as 1812 it was noticed by many physicians, and recorded in the New England Journal of Medicine and Surgery, "that in a large proportion of cases where ergot was employed, the children did not respire for an unusual length of time after birth, and in several cases they were irrecoverably dead." "Since then," says Dr. Beck, "a large

amount of testimony has been furnished, confirmatory of the truth of this suggestion." Still more pointed and direct evidence is found in the following statistics, collected by Dr. Beck. Dr. Ward, of New Jersey, who used the article extensively, came to the conclusion, that unless the child was expelled in forty minutes after its effect was apparent, it would be born dead. Dr. Hosack gave it in three cases, and the result was three still-born children. The late Dr. William Moore, "a veteran practitioner of obstetrics in this city," testified, "It appears to be injurious to the child *at all times*, for in every case in which I have seen it exhibited, the child was still-born." Dr. Chatard, of Baltimore, gave it in thirty-seven cases, and fourteen of them were still-births. Dr. Holcombe, of New Jersey, Dr. Davies, of London, Mr. T. Chavasse, of Birmingham, Mr. Paterson, of Aberdeen—all experienced obstetricians, coincide with the previous authors. Dr. Perkins, of this city, testifies: "I have reasons satisfactory to my own mind for believing, that it has frequently destroyed fœtuses, and produced sterility in mothers."

Dr. Beatty, of Dublin, states that he has known infants which have been narcotized by ergot before birth, to have been affected with convulsions afterward, *terminating in idiotcy!*

This is but a small part of the evidence extant, but I trust it is sufficient for a proper understanding of the subject.

Nor is the employment of chloroform, ether, or any other *unnatural* agent free from danger. These agents will, it is true, mitigate the suffering from labor pains to a much greater extent than they diminish the contractile power of the uterus. But already the attention of practitioners has been called to the injuriously narcotic effect of these articles on the child. And even in cases where it has not stupefied the child, it has produced a narcotic shock upon its nervous system which proved a lasting and incurable injury. If mothers will take proper care of themselves, there will be rarely occasion for such treatment; and if doctors would teach them this lesson, and so avoid the necessity of using those agents, they would confer on suffering humanity a much greater boon than in assuaging pains which might have been avoided.

Natural Labor.—All labors are usually called natural in which the child is so disposed within the uterus or pelvis that the birth can be accomplished by the efforts of nature; in contradistinction to *unnatural* and *complicated* labors, which require manual or instrumental assistance. In the most common, and perhaps the only truly natural labor, the head presents at the superior strait, with the occiput in front or toward the symphisis pubis, and the face turned toward the sacrum.

The reversed presentation—the face forward—is rarely attended with any other difficulty than a more tedious delivery. Foot presentations almost always terminate naturally, and the same is true of breech presentations.

Diagnosis of Presentations.—The distinctive signs by which different parts of the body can be recognized at once, ought to be familiar not only to all midwives, but to all females who are liable to be called upon to assist in emergencies. The *head* may be readily known by its hardness and by the sutures and fontanelles; the *breech*, by its softness, the anus, os coccygis, the scrotum or vulva, and the cleft between the buttocks; the *knee*, by its rounded form, and by the condyles of the femur; the *foot*, by its long narrow form, its being at right angles with the leg, the narrow heel, and nearly equal length of the toes; the *elbow*, by the olecranon process, which renders the joint much sharper than the knee; and the *hand*, by its shortness, the unequal length of the fingers, and the divarication of the thumb.

Stages of Labor.—The *first stage* is usually reckoned that period in which the first *obstacle* to delivery is overcome, which consists in the dilation of the *cervix uteri*. In most cases, a pouch of the membranes, filled with liquor amnii, called "the bag of the waters," is pressed forward of the child's head, and serves as an equable wedge to effect the dilation in the easiest possible manner; but when the waters have been prematurely discharged, the child's head acts as a wedge, in which case there is considerable more suffering. In the *second stage* the second obstacle, which is the brim of the pelvis, is overcome; the head of the child is compressed, and, as it were, *molded* into a shape exactly adapted to the passage. When the due position of the head is attained, it advances with every pain, and recedes somewhat during their intervals until it arrives at the lower outlet. The obstacles here are the ligaments, muscles, cellular tissue, and perineum, which gradually yield as the head is repeatedly pressed against them, until the dilatation is sufficient to permit the head to pass, constituting the *third stage*, and completing the birth. The duration of natural labor varies from a few hours to several days. The average time is about twelve hours. In the *fourth* and last stage, the placenta is detached and expelled. It may occur in a few minutes after the delivery of the child, or not till a lapse of several hours. Its expulsion is attended by comparatively slight labor pains.

Position during Labor.—Since man-midwifery has been a trade,

an immense amount of ridiculous parade and scientific barbarity has become fashionable on parturient occasions. It is quite customary to fix and fasten the patient in some awkward positiou for hours together, surrounded by some half a dozen female *helpers*, each one having some particular pushing, pulling, holding, or lifting duty to perform in the premises, while the doctor is fantastically and frightfully dressed, as if about to perform some terrible surgical operation. It is not strange that mothers, with a first child, are so often tormented or alarmed into diseases and accidents. In the cities, labor-chairs are common; but in the country the patient is commonly perched up on four chairs, tied together and covered by bedding, with four attendants supporting the four extremities—the husband bracing behind—the doctor conveniently disposed, and one or two extra attendants making themselves "generally useful" in preparing medicinal slops for the woman in travail, and *tea* for the party, as soon as the travail can be urged to a conclusion. All this is wrong.

The patient should walk, sit, or stand until she feels inclined, by the severity of the pains, or the local disturbance, to rest. She should then recline on a hard bed or mattrass. She may assume any position that she finds most comfortable. She may have the head high or low; lay on the right or left side, or back; or, for a change, rest on the knees, supporting the breast with pillows; or she may change from any one of these positions to either of the others as often as she pleases, and even get up and walk, if the labor is protracted, whenever she feels able and inclined to. There is no necessity for her being confined to a fixed position, and constantly attended upon, by the man or woman-midwife. Nay, such constant attention is invariably injurious.

Management during Labor.—So many erroneous notions are aoroad on this subject, that I can scarcely write a paragraph without crossing some professional error or non-professional whim. In a natural labor there is almost nothing to be done, and the principal duty of the physician is to keep the attendants from meddling. After an examination, to ascertain if the presentation is favorable or otherwise, the duty of the midwife and atteudants is resolved into keeping the patient in a comfortable position on the bed, supporting her during the pain by making firm pressure with the hand upon the lower part of the back, whenever she desires it—assisting her to change position, and giving hor a swallow of water occasionally, which should be the only food, drink, or medicine allowed.

Many abominable customs of "hastening the delivery," have had their day; and many doctors have acquired great celebrity for "deliv-

ering women" quickly; but all people ought to be taught that all these things pertain either to rash measures or false pretences. It is a common, and, I believe, universal dogma among professional men-midwives, that the *perineum must be supported* by pressing against it externally, while the child's head presses against it internally. I know of no standard author who does not recommend this practice. Professor White, of Buffalo, not long since testified in a court of justice, that the *principal use* of the physician was to support the perineum during the passage of the child's head. Now, in opposition to all this high authority, I protest against this practice as not merely useless, but actually injurious. And against the *science* urged in favor of the practice, and the affidavit of Dr. White, I oppose the common sense, that the distended part is more likely to be injured or ruptured when pressed between two resisting bodies than when only pressed on one side. The practice I am controverting can only be predicated on the notion that nature has not constructed the parts on correct principles, or has not provided the necessary means to accomplish her own purposes.

Some authors recommend the nurse to press upon the uterus externally as the child is being born, with a view of loosening the afterbirth. This, too, had better be let alone. The umbilical cord is sometimes coiled around the child's neck; and, although it can be easily slipped off, it seldom does any harm.

When the head is very strongly pressed in the cavity of the pelvis, the integument of the scalp often forms a rather firm, circumscribed swelling; and probably no occurrence so trifling has ever occasioned so many serious alarms and accidents. It has been mistaken for an abnormal tumor, and cut open; and, for a presentation of some other portion of the body. No one, not even the most inexperienced, need make any mistake here if he or she will only employ the thinking faculties, for the *hair of the scalp* will in all cases determine its character; and all the treatment it requires is to be left to itself.

As soon as the child is born it will cry lustily, if healthy and vigorous, soon after which the umbilical cord may be tied and cut; but if the child does not cry, or appears apoplectic or feeble, the cord should not be cut until the pulsation in it ceases. Some authors have recommended slapping the child on the back to excite circulation and respiration; but a more merciful and more efficacious practice is to dash a little cold water on its chest, abdomen, and spine.

The cord may be tied about two inches from the navel, and again an inch farther off, and then cut through near the first ligature with a pair of scissors. Dr. Burke (*Accoucher's Vade-mecum*) tells us with be-

coming gravity, that "a piece of narrow, flat tape makes the best ligature;" but I cannot conceive any reason for selecting one kind of a string in preference to another; and, in fact, if the cord is not severed too soon, there is no real necessity for a ligature at all, as we may learn from the examples of the animals around us.

The After-Birth.—The contractions of the uterus, which expel the child, also detach the placenta; and in most cases it lies loose in the vagina after delivery of the child. Sometimes, however, it is not entirely detached, or is still attached to some portions of the uterus by morbid adhesions. If no expulsive efforts are made in an hour or two —evinced by a recurrence of bearing-down pains—the cord may be gently pulled upon—never forcibly; and if the after-birth does not readily follow, gentle pressure may be made on the lower part of the abdomen with the hand: or the abdomen manipulated from above downward. Should the placenta be retained several hours without expulsive pains, the hand may be dipped in cold water and applied as above, to excite uterine contraction. The sudden application of a cold wet cloth to the abdomen is often effectual. After the removal of the placenta, a free vaginal injection of cold water is always harmless, and generally remarkably soothing and strengthening.

After-Management.—Professors of midwifery instruct their pupils to conclude their duties in this matter by placing a bandage around the abdomen of the mother to prevent a "pendulous belly;" and another around the child to secure it against being "pot-bellied." All wrong again. They do not prevent such results. The most unshapely abdomens I have ever known occurred after severe bandaging. To the infant such an application is particularly cruel and barbarous. Its tender, flexible muscles cannot have too much freedom; and those men-midwife philosophers who imagine one portion of the body wants reforming by artificial supports, while all the rest is pretty well put together by Dame Nature, must have a very mean opinion of her handiwork, as well as an exalted estimation of their own superior skill and taste.

The wet and soiled clothing should be removed from the bed as soon as convenient, and the patient supplied with clean linen; after which she should be allowed to rest as long as she feels so inclined. A tepid sitz-bath or ablution may be advantageously taken after resting awhile. It is a great mistake that lying-in women should keep their rooms or beds any prescribed length of time. But, on the other hand, there is nothing gained in being too heroic. I have known females in

this city take the entire charge of their infants from the moment of birth, and leave their rooms comfortably on the day after delivery; but if all should attempt to do so some of them would most certainly have the experiment to regret. Whenever the patient feels faint or exhausted, she should be allowed the most perfect repose, until her sensations indicate exertion. If she has been subject to prolapsus, or severe leucorrhœa, she should be guarded against exerting herself too soon. The rule for her to be governed by is, to sit and walk as soon or as much as she can without inducing pain, distress, lameness, or bearing-down sensations—but not to transcend those limits—with no regard whatever to time.

Convalescence of Lying-in Women.—There is no place where more mischievous meddling with the harmonious operations of nature is found than in the chamber of the lying-in woman; nor is any place more abounding in mal-practice on the part of the physician; nor more infested with the conceits, whims, miseducation, prejudices, and superstitions of nurses. When the usual stimulating and slopping of the mother, and the stuffing and dosing of the child is taken into the account, we have no occasion to wonder that so many mothers have a "bad getting up," nor that so many children decline and die. The mother is gorged with catnip teas, panada, wine-whey, soups, broths, and medicated slops innumerable to promote the lochial discharge, or increase the secretion of milk; and the child is made to swallow castor-oil, sweetened urine, and other nauseous and disgusting trash, to "clear out the meconium," and afterward fed on magnesia, prepared chalk, and dosed with aromatic seeds and pungent essences to "keep out the wind," and paregoric or laudanum, or opiate cordials, to quiet the pain and irritation which the doctoring has produced. These doings, which are almost universal in civilized society, indicate a stupid ignorance or gross perversion of the simple and efficient operations of nature, destroy thousands upon thousands of infants in their cradles, and lay the foundation for debility, imperfect development, and innumerable diseases in those who are so fortunate or unfortunate as to survive them.

The food of the mother should be essentially of the same nature as usual, having reference, of course, to the state of the system, amount of exercise, etc. The mother does indeed, to some extent, "eat for two," but the appetite will always demand food enough; and it may be satisfied short of overloading or oppressing the stomach. Bread and milk, or gruel with toasted bread, cracked wheat, boiled rice, etc., with a moderate supply of ordinary fruits and vegetables, are suffi-

riently watery for all needful purposes if the milk be deficient, while dry toast, crackers, good bread, potatoes, etc., are amply corrective when the breasts are overburdened with this secretion.

Accidents during the Lying-in Period.—The majority of accidents and diseases which follow ordinary labors, are artificially produced, the result of meddlesome doctoring or bad nursing. The majority of medical writers on midwifery give directions for managing the patient, which, if strictly followed, could hardly fail to induce actual diseases. It is a common practice to stimulate with wine or brandy, or camphor and carbonate of ammonia, if the patient seems exhausted and chilly after parturition; give opium if she is restless, and bleed or leech if she is feverish, and take blood even if she is cold and shivering, if the practitioner *suspects* the shivering to be the cold stage of an approaching puerperal fever. Thus is the whole organism thrown into confusion and disorder, and called upon to waste its prostrated energies in resisting the effects of poisons at the precise moment when it needs the most profound and undisturbed repose, both as regards external disturbances and internal irritations. A single extract from a standard text-book will show that I neither misrepresent nor exaggerate in this matter.

Dr. Huston, as quoted by Dr. Condie, in Churchill's Midwifery, says: "I have seen more than one instance in which there was reason to believe the life of the patient was sacrificed from ignorance of the true character of the condition here referred to [nervous shock or exhaustion after delivery]. If the attention of the practitioner be at the time particularly directed to puerperal fever, he is liable to confound the exhaustion in which he finds the patient with the early stages of that disease. The cold extremities constitute the chill, while the haggard countenance, hurried respiration, and frequent pulse are regarded as conclusive evidence of a rapid peritonitis. Bleeding from the arm or by leeches, is the instant resort, and a few short hours confirm the worst anticipations, by the *fatal termination*, a result which the efforts of the attendant have but too successfully aided in producing."

Who can fail to see the "lesson of wisdom" taught by these fatal mistakes? Lancets and leeches have no business in the lying-in chamber; and if they were always where they should be no woman would be killed by them; the doctor might err in opinion without causing the death of his patient. And here I may pertinently state a rule of universal application, which doctors, midwives, and nurses might often revert to advantageously: Whenever there is serious doubt as to

what ought to be done for the patient—*do nothing*—ten chances to one that while the doubts are being solved, nature will solve the difficulty.

Flooding sometimes, though rarely, occurs several hours after delivery. It is to be treated precisely as when occurring at any other time.

The *lochial discharge*, or *flowing*, sometimes ceases suddenly, or is suppressed by taking cold, or by inflammatory excitement, followed by distress or swelling in the abdomen, or pain in the head, sense of numbness, coldness, etc. The warm hip-bath or hot fomentations are to be occasionally employed until the action is re-established.

Puerperal fever, or *peritonitis*, is one of the most frequent and fatal diseases under old school practice; but I have never known nor heard of it among several hundreds of cases treated hydropathically. In fact, I consider this frightful form of fever an *impossibility* under judicious water-treatment. Medical authors distinguish several varieties or forms of this disease, as *acute puerperal peritonitis*, *adynamic* or *malignant puerperal fever*, *puerperal intestinal irritation*, *false peritonitis*, etc.; but they are all merely accidental modifications or different degrees of severity of the same disease, which consists essentially in an inflammation of the peritoneal membrane, sometimes, however, complicated with inflammation of the bowels or uterus, and attended always with a violent but low prostrating fever of the typhoid type. Among the more prominent symptoms are swelled, hard, and painful abdomen, and obstinately constipated bowels.

There is no disease the pathology of which physicians confess themselves more ignorant of; and certainly there is none which has been more unfortunately treated by the medical faculty, the deaths averaging about one in three cases.

The treatment is the same as for ordinary inflammation of the bowels: cold wet cloths to the abdomen, the pack or general ablution, warm foot-baths, cold applications to the head, and tepid injections. There is no danger whatever in applying cold wet cloths to the abdomen in these cases: the danger is in withholding them. I have known too many to sink rapidly under the hot mustard plaster and turpentine treatment, not to speak advisedly on this point.

Inflammation of the breast, resulting in abscess or "broken breast," is among the frequent results of the system of living and doctoring we oppose, and among the things unknown in hydropathic practice. Cold wet cloths, well covered with dry ones, and very often renewed, constitute the local treatment. When the breast has a surplus quantity of milk, it may be drawn off with the breast-pump, or by that ever-

convenient suction-pump, the human mouth. When the nipple is malformed or deficient, the breast-pump will often succeed in drawing it out.

It is no uncommon circumstance for a young mother, especially with her first child, to suffer horribly for three or six months, or even a year, with this loathsome complaint; and yet it can never occur if the system is kept free from obstruction by proper diet and bathing, and is not drugged.

Sore nipples require nothing more than a little cream, olive oil, or simple cerate, with the occasional application of cold wet cloths when they are hot or painful, and occasional fomentations when they are cracked and sore.

Milk fever, which is owing to an overheated or unventilated apartment, or to heating food, drinks, or medicines, usually appears about the third day after delivery. It is attended with the ordinary symptoms of general fever, great pain and throbbing in the head, and, unless speedily relieved, a suppression of the secretion of milk. If the patient is not very weak or exhausted, the wet-sheet pack should be promptly resorted to, and repeated as often as the general heat demands; otherwise, tepid ablutions are to be very frequently employed.

Puerperal swelled leg—phlegmasia dolens—is yet another frequent occurrence in ordinary practice, but unknown in the Water-Cure system. This malady has already been considered in the chapter on Dropsical Diseases; and I need only add in this place, that the management is the same as for local inflammations generally: cold wet cloths, according to the local heat, and cold or tepid sponging or washing of the whole body, according to the degree of general heat.

CHAPTER VII.

INFANT NURSING.

Dress of Infants.—The first provision to make for the new-born infant is suitable clothing. All the usual bandaging and swathing is to be rejected, with every other article of apparel that in the least constrains its motions. After a washing in tepid water, a soft rag should be tied around the remnant of the cord, and the child dressed with the diaper, a loose shirt, a soft flannel petticoat, and an easy frock. On no

account should any thing be pinned or tied around the abdomen, or any part of the body, like a belt or bandage, unless for some surgical purpose.

Bathing Infants.—Every child should be washed over the whole surface daily; always, too, immediately after waking from sleep, and never soon after eating. The water should be of a mild temperature at first—85° to 80°—and gradually reduced to 70° or 65°.

Food of Infants.—Greater errors are committed in this department of infantile nursing than in any other, unless it be in that of drugging. Indeed, I know of no subject in relation to which our American women are so ignorant, or, rather, so full of errors as this. The women of England are far more intelligent in the method of rearing children healthfully; and the animadversions of some of them upon the foolish habits which prevail in this country, of stuffing and gorging young children on complicated dishes, sweet cakes, candies, and the like, though very severe, are perfectly just. No American mother could be induced to feed her child in the way children are generally fed in this country, if she knew the consequences.

Not long since a gentleman and his wife, from a neighboring state. were under treatment at one of my establishments. A child happened to be present which had been thus far reared hydropathically, and was a perfect picture of health and happiness. During a conversation about this child, she went to her trunk, and then exhibited the daguerreotypes of three beautiful children she had lost. They were all fine, healthy children, and grew hopefully; but alas! at two, three, and four years of age they suddenly *died of convulsions!* After inquiring into her habits of feeding them, I could only wonder how they lived so long. Poor, childless mother! she still weeps for the lost ones; but I fear if others are born unto her, they will be lost in the same way, so difficult is it to teach a mother that *her* artificial appetite is no guide to the natural diet of a child.

The mother's milk, it is known, is the appropriate food during the first few months; but in cases where the breast does not yield a supply at first, a little sweetened milk and water is the best substitute. It must be remembered that, in the great majority of cases, the breast will yield the food as soon as there is any real necessity for it on the part of the child. Nurses generally commence giving solid food too soon—as early as the third or fourth month. The first appearance of the teeth, about the seventh month, seems to indicate that as the natural period for commencing the employment of solid food. It is a

great mistake to suppose that all the food taken into the tender and delicate stomach of the infant should be fine, concentrated, divested of all innutritious matter, and very nutritious. It is, on the contrary, even more important for children than for adults, that the food should be unconcentrated and unobstructing, as well as simple and uncomplicated. Farina, corn starch, fine flour, and refined sugar, are the fashionable materials for the infant dietary; but a worse selection could hardly be made. Graham flour, mush, cracked wheat, coarse Indian meal, hominy, boiled rice, brown bread soaked in milk, boiled potatoes, stewed squash or pumpkin, roasted, baked, stewed, or boiled apples, etc., are the proper solid food for infants from the first moment that they are able to take any kind. This plan of dieting will secure the child against dysentery, cholera infantum, colics, gripes, spasms, convulsions, scrofulous swellings, skin diseases, painful teething, etc., etc., which annually sweep off so many thousands to their graves.

Improper diet has a vast deal to do with making children cross, fretful, and ugly-tempered, as well as dull, sickly, and stupid. The most healthy children may be stuffed so outrageously as to suffer continually from cramps, colics, and all sorts of aches and pains; and so feeling bad, will act bad, in spite of good counsel, parental authority, the nurse's lullaby, or the barbarian's rod.

The practice of learning or forcing children to swallow flesh-meat, before they can properly masticate it, is deserving the severest reprehension. Scarcely any thing, in my humble judgment, has a more injurious effect upon its body or mind than this miserably foolish fashion. Two or three years is early enough, and several years later is still better, for any child to first taste of flesh. But many mothers, perhaps the majority, stuff fat, grease, and flesh into their mouths before they are even weaned. Such children are always full of foul humors, or liable to severe inflammatory or febrile diseases every time they take a little cold; all of which may be avoided by feeding the child on such plain, simple, vegetable food as it always relishes, and will always be satisfied with, until its parents or nurses, in their deep, dark, and pitiable ignorance, pervert and deprave its natural appetite.

After being weaned, the usual time of which is at the end of nine or ten months, the child should be trained to regularity in the habit of eating; never allowed to eat between meals, nor after going to bed at night, until the next morning's breakfast-time.

The practice of feeding children simply to amuse them or keep them quiet, is also deserving severe reprobation; yet it is one of the fashions of these days. Those who travel much on our railroads or steamboats will, if they are of observing habits, notice that a large

proportion of all the children aboard, from one year old upward, have their hands full of candies, sweet cakes, or some other eatable; and if their observing habits are close, they will also notice that those same children are crying, kicking, and yelling with teethache, headache, stomachache, and bellyache, a good portion of the time. If the mothers of those children understood the connection between these causes and effects, they certainly never would be the instruments of inflicting so much misery on their little ones.

Drink of Infants.—Few words are required here. Those children who are fed properly know very little of thirst, unless it is derived from the bad dietetic habits of the mother. Still, if thirst exist, water should be allowed *ad libitum;* but the greatest care should be taken to provide perfectly pure and soft water. Children are more injuriously affected than adults by impure or hard water. Salted or greasy food provokes excessive thirst in young children. Common bakers' bread induces great thirst in all children who are principally fed upon it—a conclusive evidence that it is not fit for them. Warm drinks, with which some nurses are so fond of slopping children, after provoking unnatural thirst by unnatural food or seasonings, tend to produce diseases and debility of the kidneys and urinary organs. It is an excellent practice to give the child a tea-spoonful of cold water two or three times a day, independent of its desire to drink. It soothes the irritability of the gums, and lessens the inflammation and tenderness during dentition.

Sleep of Infants.—Young infants are naturally disposed to sleep a large proportion of the time—an instinct which may be indulged to its full extent. It is essential, however, to the health and perfect development of the young child that it does not sleep with a sickly or aged person; and it is preferable to have it sleep in a crib or trundle-bed by itself, in all cases after weaning. The thorough ventilation of a child's sleeping apartment is even more important than that of the adult. Children do not often take cold from excess of air while asleep, but very frequently in consequence of sleeping in a hot or close room.

Exercise of Children.—Young children, if healthy, are always in motion, except when asleep; and those mothers do them wrong who try to keep them still and out of mischief. The true philosophy of *babyism* is to keep mischief out of their way, and then let them run. They must exercise in play constantly, or be sick. A lazy or a quiet child is a sick one.

Excretions of Infants.—Nothing can exceed the absurdity of the common practice of dosing a young child, on every occasion of a little irregularity of the stomach and bowels. In most instances those disturbances are salutary efforts of nature to get rid of surplus, crude, or irritating matters. The conical shape of the infant's stomach enables it to vomit with great facility; and in most cases the vomiting is the result of overfeeding, or offending material. In either case it will take care of itself if left to itself, and nothing put into it but proper food and drink in proper quantities.

The bowels are necessarily subject to some degree of irregularity. For a few days after birth the discharges will be dark and watery, consisting of the fœcal matters, or *meconium*, which accumulate in the bowels during the latter part of the fœtal life, mixed with the ordinary fœcal excrement and secretion; gradually they become more yellow and of firmer consistence. When the teeth are pressing through the gums, the bowels are always naturally prone to laxness; and if the irritation from teething is considerable, the looseness will amount to diarrhea. Here again, if we are not too blind, we may see the beneficent provision of nature to remedy what seems to us to be abnormities. If the child is properly fed, no trouble need be apprehended from this source—the bowels will take care of themselves. In extreme cases of irregularity, either of diarrhea or constipation, no other medication is necessary than cool injections, with the wet abdominal bandage in the former case, and tepid injections, and perhaps a greater proportion of fruit, in the latter difficulty. The ideas of curing diarrhea in young persons by astringent medicines and constipating food, and constipation by purgatives, are both exceedingly mischievous in practice. Both complaints arise from irritation or debility, and healthful action is the proximate remedy for both.

Teething.—The lax state of the bowels lessens, to a considerable extent, the inflammatory state of the gums during the protrusion of the teeth. The irritation can be further allayed by occasionally putting a tea-spoonful of cold water into the mouth. When the teeth are about coming through, rubbing the swelled gum with the finger is extremely soothing; when there is great heat and tenderness, a piece of ice inclosed in a rag and rubbed on the gums will alleviate the pain. Children often manifest, for a few hours, a high constitutional fever, the result of the local irritation. Beware of meddling with this fever in the way of drug-medicines, as an inflammation of the bowels may be the consequence. I protest also against the common practice of cutting or lancing the gums of children. Serious evils often result

from it, and all the good it promises can be assured by the other means I have mentioned.

Drugging Infants.—From a little book (*Essays on Infant Therapeutics*), by the late John B. Beck, M.D., Professor of Materia Medica and Medical Jurisprudence in the College of Physicians and Surgeons of the University of the State of New York; Corresponding Member of the Royal Academy of Medicine of Paris; Corresponding Member of the Medical Society of London; one of the Vice-presidents of the Academy of Medicine of New York, etc.—these titles show that this book is one of *authority*—I copy the following statements:

"With regard to the effects of opium on young subjects, there are two facts which seem to be well established. The *first* is, that it acts with much *greater energy* on the infant than it does on the adult; the *second* is, that it is more *uncertain* in its action on the infant than the adult. It is in consequence of these peculiarities attending its operation on the infant, that even the *smallest quantities* have not unfrequently produced the most unexpected and even *fatal results*." Of this, almost *every physician* must have seen some melancholy examples. Dr. John Clarke states that half a drachm of sirup of white poppies, and also a few drops of Dalby's carminative, have proved fatal in a few hours. Mr. Marley knew a case in which half a small tea-spoonful of sirup of poppies proved nearly fatal, and one case in which thirty-five drops of Dalby's carminative proved quickly fatal to a young child. Dr. Bard knew an infant of several months old killed by ten drops of laudanum, and another nearly killed by less than two drops. Dr. Christison states that three drops of laudanum in a chalk mixture for diarrhea, killed a stout child, fourteen months old, in six hours. Dr. Ryan has known one drop of the "sedative liquor of opium" narcotize an infant. Pereira has seen a powerful effect produced on an infant by one drop of laudanum. The London Medical Gazette states that two drops of laudanum, and in one case one drop, resulted in the death of the infant.

In the Southern Medical and Surgical Journal for July, 1849, the following case was reported by Dr. N. V. Woolen, Loundesboro', Alabama: "A fine, healthy female child, in the fifth day of its age, suffered from 'griping,' as its mother supposed, for which she administered to it *one* drop of laudanum. Thirty minutes afterward its breathing became slow and stertorous, and other symptoms of narcosis came on. Notwithstanding every effort made, the child died in eleven hours after."

If so many children die from the effects of such small doses, how ruinous must be its common administration by the hands of nurses on any occasion when the child is uneasy, or refuses to keep as still as suits their comfort and convenience. It is an ingredient in most of our medicated candies and lozenges, cough-drops, soothing sirups, cordials, carminatives, nervines, etc. Dr. Beck says: "The effect is to stunt the growth of the child; it is emaciated and puny; the skin is flabby and shriveled; the lips are bloated, and the countenance sallow and wrinkled. There is an absence of all intelligence, and the whole appearance is haggard and aged, presenting a sort of 'miniature of old age.'"

Now, as antimonial preparations are among the medicines which are freely given to children, and which enter into a great variety of fever, cough, emetic, and cathartic mixtures, and are even one of the medicating ingredients of candies, lozenges, and sirups, it behooves the people to know something about them. In the work above quoted, Dr. Beck tells us that he has known one thirtieth of a grain of tartar emetic endanger the life of a child one year old; and in another case a child was killed by *small doses* of the article. Dr. Clarke, of London, states that a quarter of a grain of tartrate of antimony in solution has produced the death of a young child. Dr. Hamilton testifies that alarming convulsions have followed its use. Mr. Noble, of Manchester, England, and Mr. Wilton, surgeon to the Gloucester Infirmary, report several cases of children of one to four years of age, dying from taking the common antimonial wine for ordinary cough and cold. Dr. Armstrong has many times seen delirium produced in young children by very small doses of antimonial preparations. Professor Schæpf Merei, of the Children's Hospital in Pesth, Germany, certifies that he has known several children vomited and purged to death by very small doses of tartar emetic. Dr. M'Cready, of this city, reports a death from the article administered in the form of Coxe's hive sirup.

Dr. Beck says: "The vomiting induced by the preparations of antimony ought to be resorted to with great caution in very young children, and should never be used except in those cases where a sedative effect is required, and can be borne with safety." The rule stands self-stultified, for the frequent deaths resulting from its use in the hands of the experienced physician, show that no medical man on earth can ever know that it can be "borne with safety."

Mercurial medicines, in a variety of disguised forms, are more frequently taken into infants' stomachs than most people are aware of. Dr. Beck tells us that their action is more energetic in the infant than the adult, and that when salivation takes place its effects are most disastrous. "Sloughing of the gums and cheek," says Dr. Beck, "gen-

eral prostration and death, are by no means uncommon occurrences." Dr. West (*Diseases of Infancy and Childhood*) has known fatal gangrene of the cheek, and necrosis of the jaw, to result. M. Bedingfield states (*Compend of Practice*), that he has known the parotid glands both ulcerated and entirely destroyed by mercurial action in young children. Dr. Beck expresses the opinion that the practice of giving calomel as an ordinary purge to children, because of the facility with which it can be taken and retained, *has laid the foundation for the ruin of the constitutions of thousands.*

I could extend these quotations indefinitely; but my purpose is to exhibit a reason why the whole trade of drugs should be rejected from the nursery at once and forever; and if the testimony already presented, which the reader will bear in mind is all taken from standard authorities of the school which advocates the practice I am opposing, is not conclusive, neither would people believe though all their children should die under their own eyes. The little good that these execrable poisons *seem* to do in some cases, is counterbalanced a thousand fold by the certain injury. Besides, and more than all, there is never—I say emphatically *never*—any necessity for their employment. There is no conceivable disease, state, condition, or ailment for which there is not a surer, safer, better way.

Infantile Diseases.—A multitude of small books have been written on diseases of small children, in most of which the matter is treated as though it was as natural for babies to be sick as it was to breathe. Gum rashes, gripings, spasms, fits, running at the ears, thrush, aptha or canker, inflamed gums, etc., are usually regarded by this class of writers as things to be expected, and provided for by keeping a due assortment of medicines on hand. I need not waste time in exposing the absurdity of all this, which is self-evident to all who will take the trouble to think for themselves. The mother who chooses to rear her children according to the principles advocated in this work, will have little to do with "infantile diseases." And if she chooses to throw the responsibility of the health and well-being of her offspring upon the doctor, I can only pity *them*, and pray for *her* enlightenment.

CHAPTER VIII.

COMPLICATED LABORS.

TEDIOUS OR PROTRACTED LABORS.—These result from a variety of causes, the principal of which are debility of the muscular fibers of the uterus; obliquity of the uterus; premature escape of the liquor amnii; excess of the waters of the amnion; unusual toughness of the membranes; and rigidity of the os uteri. In nearly all these cases, however, nature is competent to accomplish her work without our interference; and our main duty is therefore to exercise patience, and encourage the patient to do the same. In some few instances manual and medical assistance may be rendered. When the membranes protrude externally during several pains, they may be ruptured with the finger, and the waters discharged, after which the labor will be rapidly finished. Females who have suffered much from leucorrhœa or prolapsus, are liable to a thickening of the mouth of the womb, rendering it undilatable, or, rather, causing its dilatation to be unusually slow and painful. An occasional warm hip-bath will materially add to the comfort of the patient.

PRETERNATURAL PRESENTATIONS.—The statistics of over 300,000 cases, collected by various European practitioners, show that breech presentations occur once in about 53 cases, and footlings once in about 90 cases. In 78,027 cases, 1,277 were breech presentations; 1,019 presentations of the inferior extremities; and in 293 cases the superior extremities presented. From these data we may see how rarely is there occasion for instrumental or manual interference, even under the present disease-producing habits of the civilized world.

In the great majority of these preternatural presentations, the labor can be accomplished by the efforts of nature alone. Those which most frequently require assistance are presentations of the superior extremities. The general remedy in all these cases is *version*, or *turning*, except in cases of badly-deformed pelvis, or enlargement, or some other deformity of the child, when evisceration may have to be resorted to, or, as a preventive measure, premature labor induced.

OPERATIONS IN MIDWIFERY.—The operations in complicated cases

of midwifery which are considered as regular, are turning, the induction of premature labor, the lever, the forceps, craniotomy, and hysterotomy.

Turning, or *version*, consists, whatever may be the part presenting, in bringing forward the feet, this converting the case into a footling. The statistics of English, French, and German practice together show that the operation has been performed once in about 120 cases. In English practice alone it was performed but once in over 250 cases. It is sometimes resorted to in cases of convulsions, flooding, prolapsed cord, etc., in order to terminate the labor sooner. It is generally proper and often indispensable in presentations of the superior extremities or trunk, and in presentations of the placenta, which are attended with alarming flooding.

In performing this operation, the hand is introduced very gradually during the intervals of the pains, the fingers being kept in a conical form, following the curve of the pelvic passage, until the fingers and hand are gently insinuated through the os uteri, and through the membranes, if they have not been ruptured. If the shoulder present, it can then be pushed upward, and the head brought down to the oblique diameter of the brim of the pelvis, and the labor thus left to the efforts of nature. If the case is an arm presentation, the hand is to be passed along the arm until it reaches the body, then passed over the *front* of the chest and abdomen to the feet. After one or both lower extremities are reached, the feet are to be brought, with a gentle, waving motion, to the pelvis, during the intervals of the pains, which accomplishes the turning; after which the labor is finished as an original footling presentation. The feet, in turning, are to be brought over the *front* of the child, and as the feet are drawn down, the misplaced hand or arm will ascend. The labor will then be concluded without further assistance in most cases; but if the patient be in a state of extreme exhaustion, it is proper to exert a moderate extracting force upon the feet *during the pains*.

The proper time for commencing the process is as soon after a sufficient dilatation of the os uteri as possible. As preparatory measures, the bladder and rectum should always be emptied. Madame Bouvin performed this operation 218 times, with a loss of 48 children.

Premature labor may be justifiably induced in such known deformities of the pelvis as will not admit of the delivery of the child at the full period. The operation has been very rarely undertaken by regular physicians in any country; and the results, as far as statistics have been gathered, show that about half the children survive, while the mortality of the mothers is about one death in ten cases. No less

than six different methods of exciting prematurely the uterine contractions have been advocated, the most effective of which are puncturing the membranes, or mechanical dilatation of the os uteri. Uterine action usually comes on in one, two, three, or four days, and the patient requires the same management as in ordinary labors.

The *lever*, or *vectis*, is not frequently employed in midwifery, yet, more frequently than it should be. Its first introduction into practice was "hailed as a discovery calculated to confer immense benefit upon the human race;" but, like many other pretentious affairs, its reputation soon began to wane. Its use is said to be, "to correct malpositions, or aid the natural motions of the head at the brim or in the cavity of the pelvis." My own opinion of the instrument is, that it ought to be excluded from midwifery practice altogether.

The *forceps* is employed rather frequently, and has been in use about two centuries. It is undoubtedly a valuable contrivance for certain morbid conditions and abnormities. Its object is to grasp and compress the head of the child, and it can be then used as a lever or extractor. Authors specify a great variety of conditions and circumstances to which they are applicable; but in my judgment their proper employment is limited to cases in which uterine contractions fail from absolute exhaustion of the patient; in cases of convulsions, hemorrhage, or rupture of the uterus, demanding an immediate conclusion of the labor, in order to save the life of the patient; and in cases of breech presentation, when the head is retained a long time from incompressibility of the base of the skull. In Dublin, Dr. Clarke used the forceps once in 728 labors; in Paris, Madame Lachapelle once in 293 labors; in Berlin, Dr. Klugè once in 16 labors; and Dr. Siebold, of Berlin, used them once in 7 labors. These figures show that they are employed more according to the fancy of the practitioners, than from the real necessities of the cases.

Craniotomy, which consists in opening the head of the child, and evacuating the contents of the cranium, is employed when there is too great disproportion between the size of the fœtal head and the pelvis to permit the passage of the former, as in the case of deformed pelvis or dropsy of the head; also, when the child has been dead for some time without the labor progressing; also, when, from disease or accident, the head has been separated from the body; and, finally, when the passage is obstructed by immovable tumors.

There is another complication which requires this operation as the only chance for the mother; and although I do not find a similar case mentioned in any of the books, an instance occurred a few years ago in my own practice. It was a case of twins, one of which was a foot,

and the other a head presentation. The difficulty consisted in the heads, both of which were small, being locked in the pelvic cavity; the head of the footling remaining fastened *back of* the head of the other I did not see the patient until the labor was too far advanced to remedy the malpositions, and hence was obliged to eviscerate both heads before either could advance.

From the statistics of over three hundred thousand cases, it appears that this operation has been resorted to once in about eight hundred labors. Of course, in those cases where the child is not dead, the operation contemplates a sacrifice of its life to save that of the mother; as, otherwise, both would inevitably perish.

A great variety of instruments have been invented for this operation The *perforator* is commonly employed to open the cranium, and then the *crotchet*, or cranial hook, to extract the fœtus. A pair of long-pointed scissors, or a scalpel with the edge wound to very near the point, will answer. The principal point of skill consists in keeping the point of the instrument exactly in position during the operation, and avoiding injury to the surrounding parts. When the os uteri is well dilated, the fingers may be employed as tractors more advantageously than any other instrument.

Embryotomy is a modification of craniotomy; it consists in dissecting the trunk and limbs, and bringing the fœtus away in fragments, in those cases of cross presentations of the trunk or superior extremities in which the body is immovably fixed in the cavity of the pelvis, and in cases of deformities or monstrosities of the fœtus.

Hysterotomy, or the *Cæsarean section*—as it is called after Claudius Cæsar, who has the reputation of being the first who came into the world in this way—consists in making an incision through the abdominal walls and the uterus, removing the fœtus and placenta, and then dressing the external wound by sutures and adhesive plaster. It is the dernier resort, and only justifiable when distortion or obstructions render all other methods unavailable. In British and American practice rather more than half the mothers operated upon have been lost.

Symphyseotomy, or a division of the bones at the symphisis pubis, was proposed as a substitute for the Cæsarean operation by Sigault, who experimented in this way at Paris in 1777; and notwithstanding he was voted a medal and a pension, the operation soon fell into disrepute, for the very good reason assigned by Dr. Hull, "every operation had its victim." I am not aware that any among the living authors justify the operation under any circumstances.

Face Presentations.—The face may present in either of two po-

sitions, as the forehead is toward the right or left acetabulum. The presenting part is known by the general inequalities of the surface, or by the recognition of distinctive parts, as the eyes, nose, mouth, or chin. After the labor is somewhat advanced, a swelling of the face may make it liable to be mistaken for a breech presentation. The bridge of the nose is here the best guide, presenting, as it does, a firm, sharp prominence unlike any other part.

These cases do not necessarily require assistance. The labor is more prolonged and tedious, and the child's head is often considerably bruised and tumefied, but seldom dangerously so. Patience is here the best doctor. The tables collected in the books show that this form of presentation occurs once in two or three hundred cases.

Breech Presentations.—In all these cases, as the child enters the cavity of the pelvis, its back is turned either anteriorly or posteriorly toward the symphisis pubis or sacrum. They occur, on an average, as appears from the statistical data, once in fifty or sixty cases. They may be distinguished from shoulder presentations by the movable coccyx. The labor is not as tedious as in the preceding presentation, and is rarely dangerous to the mother, although it is hazardous to the child, more than one fourth of those born in this way having been lost. The duty of the midwife or attendant in these cases is well stated by Dr. Churchill: "As to the actual management, the less interference the better for the patient." Dr. Collins, another experienced practitioner, remarks to the same effect: "The most common and dangerous error committed by the medical attendant arises from officious and injudicious attempts to hasten or assist during the early stages of labor, that which we could not well adopt a more hazardous course."

Foot and Knee Presentations.—Experience shows that the inferior extremities present but once in about a hundred cases. The mortality among children has been somewhat greater than in breech presentations, although the danger to the mother is no more. When the feet present, the toes may point forward or backward, and one or both feet may be advanced. In knee presentations, this part is liable to be mistaken for the elbow; it may be distinguished by its two prominences, with a depression between them.

In these cases, according to the admissions of the most experienced writers, it is even more important that the labor be let alone or left to itself than in either of the preceding varieties of malposition.

Presentation of the Superior Extremities.—In nearly all of

these cases the shoulder is the part primarily presenting, but afterward the arm prolapses; the back of the child may be turned toward the abdomen or spine of the mother, the former being the most common occurrence. In some of the instances of this presentation the labor has been accomplished without assistance, but in others this is impracticable. Its frequency has been one case in two or three hundred. Its danger may be judged of by the facts that, of the cases recorded, rather more than one half of the children were lost, and one in nine of the mothers. The diagnosis is difficult or impossible in the early stages. When the bag of the membranes protrudes in a conical or elongated form without inclosing the head, a suspicion may be justly entertained; and after the labor has progressed somewhat, the axilla may be found, which, with the round prominence of the shoulder, will convert the suspicion into certainty.

Turning is the proper resort in all these cases, and the best time to commence the operation is, as soon as the os uteri is as fully dilated as possible. There is no danger in waiting so long as the liquor amnii has not escaped; nor is there much difficulty in turning in this case; but the difficulty is greatly increased afterward by the firm and more constant contractions of the uterus. If the contractions are intense, turning will be impossible, and the attempt then would endanger the rupture of the uterus. In this case the whole abdomen should be fomented with warm wet clothes to relax the muscular system and lessen the contractions; and the patient should drink warm water to the extent of nausea to aid in suspending the pains, after which the operation may be undertaken. Should all these measures fail, and turning prove impracticable, the only remedy is evisceration of the thorax.

Compound Presentations.—In some rare cases, the hand or arm presents with the head, rendering the labor more difficult, but not necessarily dangerous. If discovered early, the arm may be replaced above the head; but great care must be taken not to draw down the arm, as this procedure would convert the case into an arm presentation. If the replacement is not practicable it must be treated as an ordinary labor.

The feet and hands may present together, or one of each, attended usually with prolapsus of the cord. As the labor progresses, one or the other extremity will descend, converting it into a footling or an arm presentation. By drawing down the feet, the most favorable position is secured; and this, if done gently and skillfully, can always be done safely; the attendant should be especially careful not to mistake a hand

for a foot, nor in any way maneuver so as to favor the descent of the hand or arm.

Plural Births.—The signs which denote twin pregnancy are extremely dubious. Each child has a separate placenta, and its special envelopes, and both are almost always smaller than usual. The labor may be in all respects natural in relation to both, or preternatural; or one may present a natural and the other an abnormal labor. Hence all the directions mentioned for single labors are applicable to twins, triplets, etc. As many as *five* children have been born at one time, and four have been born alive. Statistics make the proportion of twins as rather above one in a hundred; and of triplets, one case in five or six thousand.

After the birth of the first child there is an interval of rest, varying from a few minutes to several hours; in some instances, several weeks have intervened between the birth of the first and second child. In the majority of cases, however, the expulsive efforts of the uterus are resumed in less than half an hour. If the placenta of the first child is not easily removable, it should be left until after the delivery of the second one; and the same rule applies to triplet and quadruplet cases.

Monsters.—In all of these cases there is excessive or defective development of some part or parts of the fœtus, or two fœtuses are conjoined. The only practical point relates to the obstacle which their bulk furnishes to the accomplishment of the labor; and here, when the deformity or monstrosity is too great to allow its passage, embryotomy is the necessary and only resort. In some cases of double monsters, as the Siamese twins, both have been born alive. The principal diseases which produce such morbid enlargements as to render the child disproportionate to the natural passages are, dropsy of the belly, and dropsy of the head—*ascites* and *hydrocephalus*. In the former cases, after the expulsion of the head, it will readily be discovered that the distention of the abdomen prevents the delivery of the body; and in the latter case the head is presented at the brim of the pelvis of unusual size and nearly incompressible; and, notwithstanding strong uterine contractions, or "good pains," the head does not descend into the pelvic cavity. In either case the child is either dead or in a dying condition; there need be no hesitancy in eviscerating or puncturing the abdomen or the head. In footling cases of hydrocephalus, the head is to be perforated behind the ears.

Prolapsed Cord.—The umbilical cord may protrude alone, or with

the presenting part, either at the commencement or during the course of labor. This accident has no influence on the labor, but endangers the child, by obstructing the circulation of the cord. Statistics indicate its occurrence once in about two hundred and fifty cases, with the loss of about half the children. A great variety of plans have been suggested, and many of them tried to remedy this difficulty; but some of them are hazardous to both mother and child, and all uncertain; my own opinion is decidedly in favor of the let-alone practice in preference to any thing yet proposed. In this way the mother's life will never be endangered, while the chances for the child are scarcely lessened.

Retained Placenta.—Obstetricians differ as to the time a retained placenta should be left to the efforts of nature before proceeding to extract it by force. Some are for waiting only an hour; others several hours; and others still oppose its forcible extraction at any time except when hemorrhage attends. It is certain that it will slough off and be expelled sooner or later, but practitioners have generally apprehended dangerous inflammation. Under the ordinary practice, there is very great danger in this respect; but with a more rational philosophy, and more efficient appliances to keep down inflammation, the hydropath can justly exercise greater hope in his own resources, as well as greater faith in nature.

The irregular contraction, or "hour-glass contraction" of the uterus, by which the placenta is retained, has been noticed frequently to follow the use of ergot, and sometimes the employment of instruments.

Hemorrhage.—Flooding, accompanying labor abortion, has already been considered. During the last month of gestation, at the commencement of labor, two forms of hemorrhage are liable to occur; one is called *accidental* because it arises from an accidental and partial separation of the placenta while occupying its usual situation; the other is termed *unavoidable*, because the placenta is placed over the os uteri, and unavoidably separated as the dilatation progresses. Hemorrhage from these sources, according to the statistics, occurs once in about one hundred and fifty cases. In the first variety, the discharge occurs *only between the pains;* whereas, in the second variety, it is increased *during the pains*, yet continues also during their intervals.

When the hemorrhage occurs before expulsive contraction takes place in the uterus, the ordinary measures to correct it should be resorted to, as the horizontal posture, a cool room, hard bed, cold water-drinking, and cold enemata, to which may be added, in severe cases, the *tampon* of two silk handkerchiefs. When the full term of gesta-

tion has arrived, and actual labor pains have commenced, the operation of turning should be resorted to as soon as the os uteri is sufficiently dilated, providing the hemorrhage continues dangerously alarming.

Convulsions.—Convulsions of the *hysteric*, *epileptic*, or *apoplectic* character, are among the incidents of complex labors noticed by authors. They may occur previous to, during, or after parturition. Epileptic convulsions are much more frequent than either of the other kinds; and among all the cases recorded, only one in about six hundred have been affected with either kind. When the fits occur during labor, the uterine contractions are seldom interrupted by them.

Writers on midwifery are very contradictory as to the proper treatment to be pursued in these cases. The majority insist on large and repeated bleedings and strong purgatives; others add to this leeches, cupping, and blisters; and others add to them all opium and tartar emetic. Dr. Huston testifies that he tried the bleeding practice in one case, and the patient had a tedious recovery. In the next case, he tried an exactly opposite method—gentle stimulants—and the patient did much better. His experience strikingly illustrates the benefit of "choosing the least of two evils."

The general plan of treatment for these fits is precisely the same as when they occur at other times: warm hip and foot baths, cold applications to the head, etc.

Puerperal Mania.—Temporary delirium, or mania, often accompanies the latter stage of labor. It is manifested by incoherence of language, and appears to be occasioned by the extreme suffering experienced at that time by very irritable and nervous females. It generally passes off as soon as the labor is finished, and the patient has become partially composed. In some cases it results from an accidental suppression of the lochial discharge; and occasionally it seems to result from the irritation attending the lacteal secretion. As it is always symptomatic, attention is only required to the primary difficulty.

Lacerations.—Rupture of the uterus, or vagina, and lacerations of the perineum, are fortunately among the extremely rare complications. They may result from disease of the parts, producing a softening of the structures or obstruction of the passages, from the injudicious use of instruments, or improper interference with natural labors. It is only necessary to say, in relation to all these accidents, that they require the attention of the experienced surgeon.

Inversion.—An inversion of the uterus may result from a forced or too quick delivery, pulling upon the umbilical cord, preternatural attachment of the placenta to its fundus, or a tumor adherent to its fundus. It is denoted by the external protrusion, and the absence of the contracted uterus in the lower part of the abdomen. There is generally considerable hemorrhage, and the patient always becomes suddenly deadly pale, faint, and sick at the stomach; the voice is weak, the pulse rapid and fluttering, and immediate dissolution sometimes takes place.

In all cases, whether the inversion be partial or complete, its reduction should be attempted at once, by pressing the protruded portion gently, but firmly, up through the vaginal passage. Its complete replacement will be known by its suddenly springing from the hand, after it has been nearly restored to its position.

When the placenta is still attached to the uterus, authors are divided in opinion whether it should be removed prior or subsequent to the replacement, The best rule appears to me to be this: if the attempt can be made *immediately* after the accident, not to wait to remove the placenta; but if a considerable time has elapsed, the contraction will probably make its removal indispensable to success, so that the safer wey is then to remove it before any attempt at reduction.

APPENDIX.

The following paragraph, having been accidentally omitted in its proper place, must form an appendix to, and the conclusion of this work:

Theory of Conception.—The researches of naturalists and physiologists during the last hundred years, together with extensive observations and experiments which have recently been made, in relation to the reproductive function, have established a fact of immense importance to physiological improvement and human happiness. It has been demonstrated that procreation in the human animal is effected—as in all mammifers, as well as with birds and reptiles—by the development of germs, ovules, or eggs in the female, and their fecundation by the male. These ovules are formed in the ovaries, and are passed to the uterus, and thence expelled independently of fecundation or sexual intercourse. During each menstrual period an ova is transmitted to the uterus, where it remains several days, varying in time usually from one to two weeks, though, in a majority of cases, it is passed off between seven and twelve days. But if, before its expulsion, it become impregnated by sexual connection, it remains and becomes the embryon of the future being. Now, a knowledge of this law of conception places the existence of offspring, and the future population of the earth, entirely within the control of the will, reason, and judgment, instead of leaving them, as heretofore, at the mercy of a blind impulse or merciless passion. A thousand reasons will occur to any reflecting mind why, in certain places and under certain circumstances, a less numerous but better quality of infantile population is desirable. There are also thousands of married persons in the world, whose circumstances of extreme indigence render many children a source of regret to the parents and misery to the offspring; and, again, there are thousands of infirm, crippled, deformed, imbecile, or incurably diseased persons, living in the matrimonial relation, who are capable of propagating an inferior race, but who ought not to be cursing and cursed with offspring at all; and, lastly, under the forcing, stimulating, disorderly physiological habits of the vast majority of civilized people, there is a tendency to numerical increase, with corresponding imperfection of offspring. Against all these accideuts and incidents, a knowledge of the origin of life affords us the remedy. And who shall say that a knowledge of the origin of life is not as legitimately to be sought and understood as a knowledge of the growth, development, education, and preservation of it? It is true that, in some few instances, the ova is expelled in two or three days after the cessation of menstruation; and in some rare cases

it does not pass off until after the twelfth day; but these are only exceptions to a general rule; and as impregnation can only occur, as a general rule, between the commencement of the menstrual excitement and twelve days after its cessation, those who would not propagate have only to abstain from sexual connection during this period. I am aware that some may object, as others have objected, to enlightening the general mind on this matter; that many persons, dreading the cares, expenses, trials, etc., of a family will abuse the privilege it confers, and refuse to bear their share of the burdens of furnishing the world with inhabitants, and the state with taxable citizens and numbers for the census. But I have no sympathy with the advocate for ignorance in relation to this or any other physiological law ordained for man's government. If God has made the law, it is man's privilege to learn it, and his duty to obey it; and, further, if there are such persons in existence as the objection supposes, they are themselves the strongest argument I can adduce in favor of my position. *They should* never be parents.

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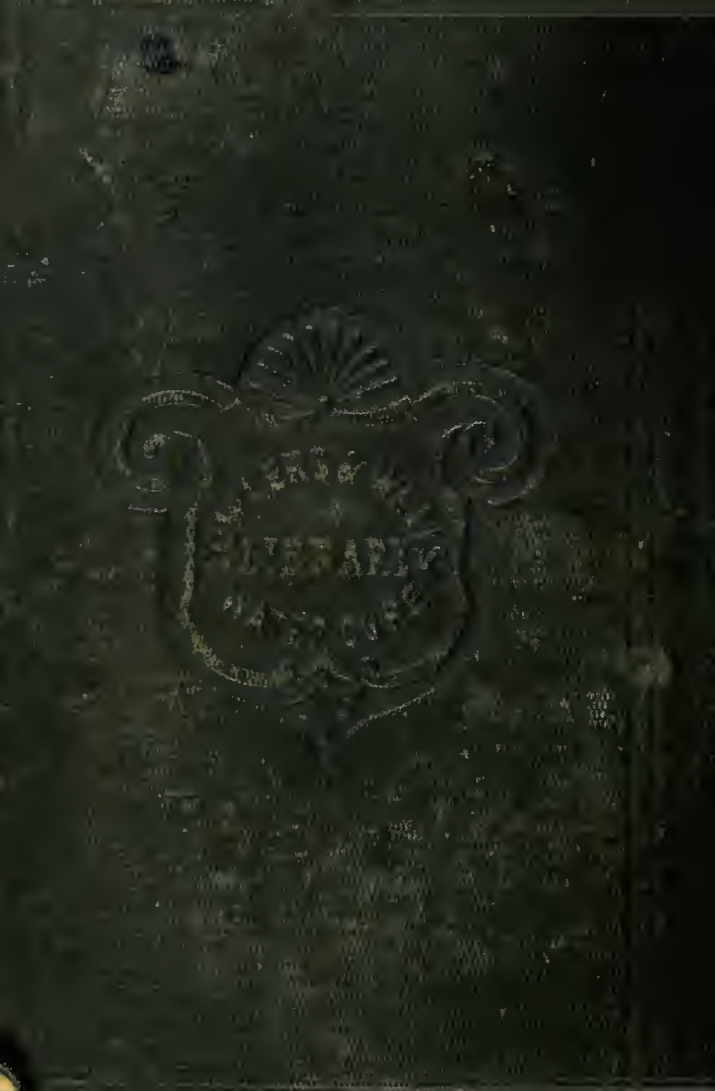
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